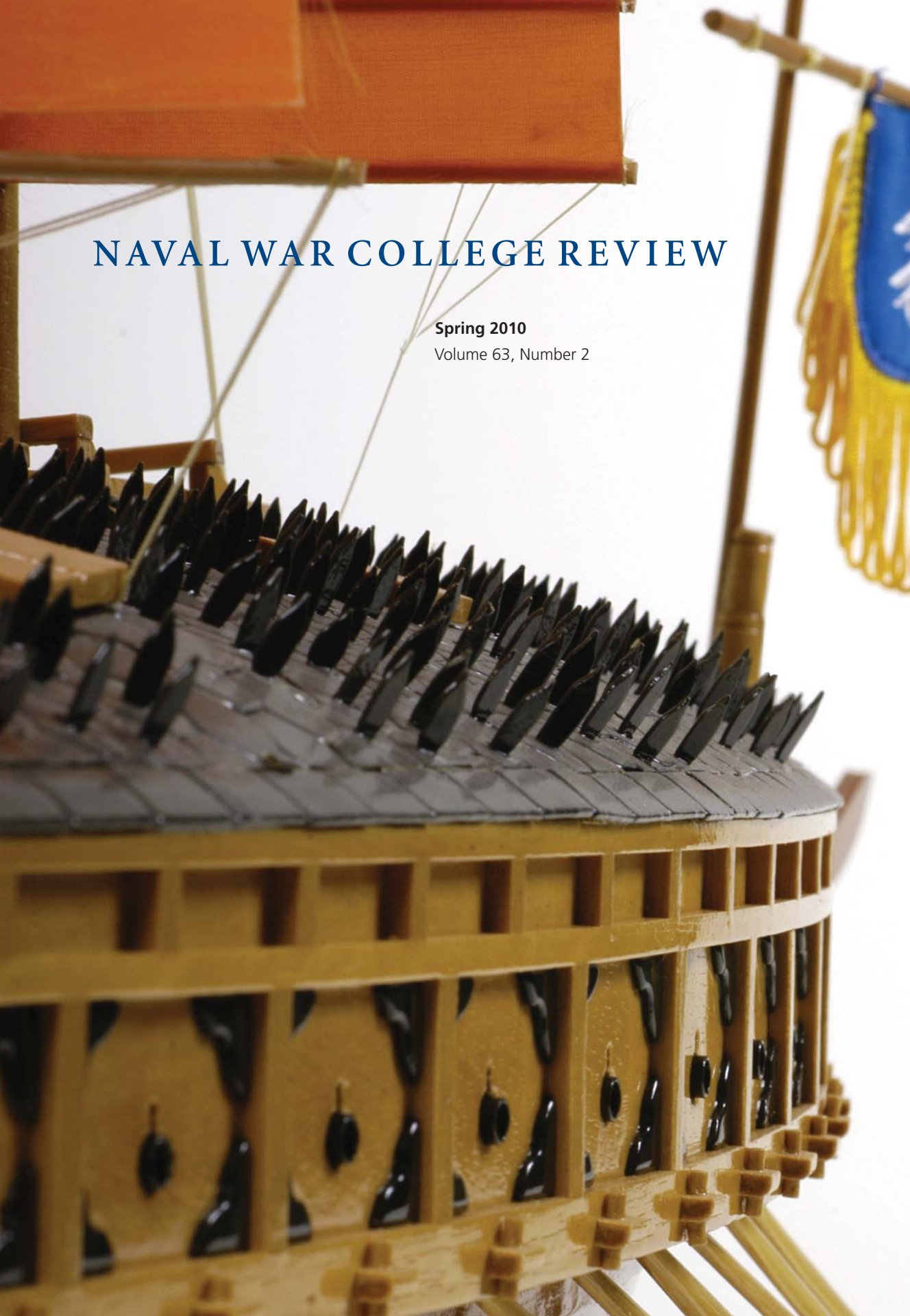

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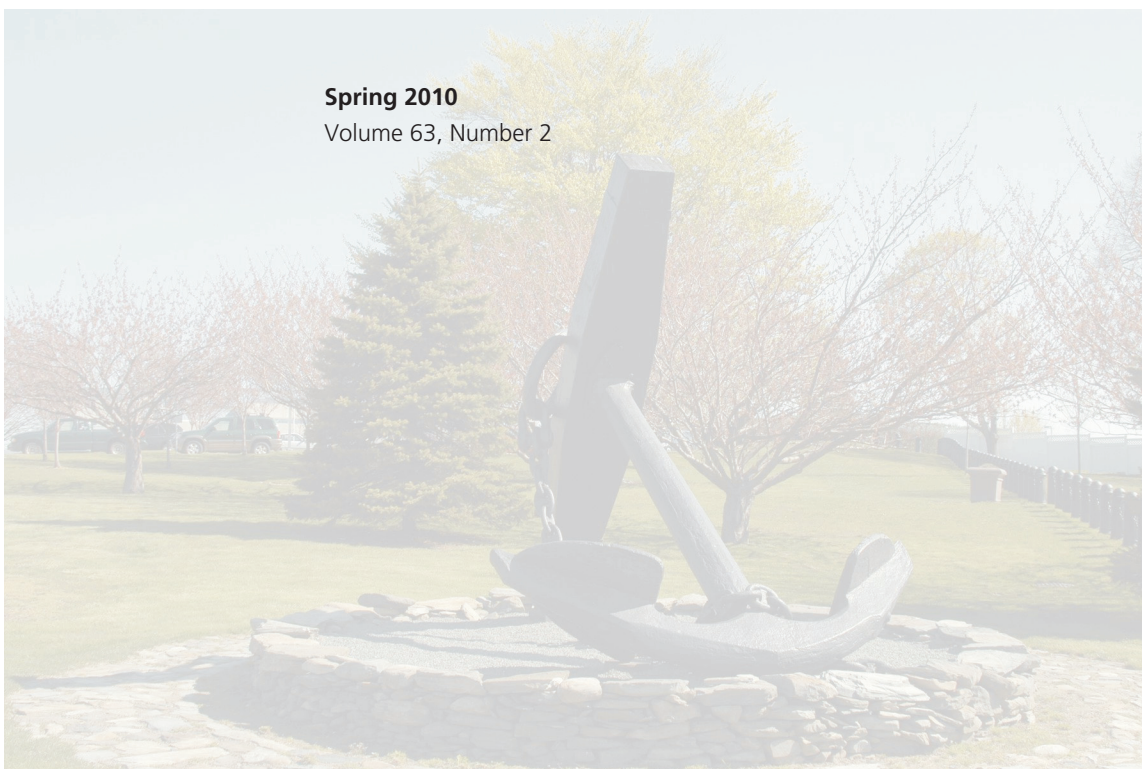
Cover

A model from the Naval War College Museum collection of a Korean "turtle ship," such as those that helped repulse the sixteenth-century Japanese invasion of Korea—a campaign vital to the spirit of the modern Republic of Korea Navy, as noted by Yoji Koda (Vice Admiral, Japan Maritime Self-Defense Force, Retired) in this issue's lead article.

The model, just over twenty-six inches long and almost nineteen tall, was donated to the Naval War College in 1993 by Rear Admiral Ha Jong-keun, president of the Korean Naval War College. The original ship was 113 feet long, thirty-four feet in beam; it displaced 150 tons, mounted fourteen guns, and carried a complement of 130. The spikes on the "turtleback" deterred boarding; the iron plates, which were bolted to wood sheathing up to a foot thick, made the turtle ship the world's first ironclad. The Mandarin Chinese character on the model's flag signifies "Turtle."

Naval War College Museum. Photographs and design by the Naval War College Visual Communications Division.

NAVAL WAR COLLEGE REVIEW



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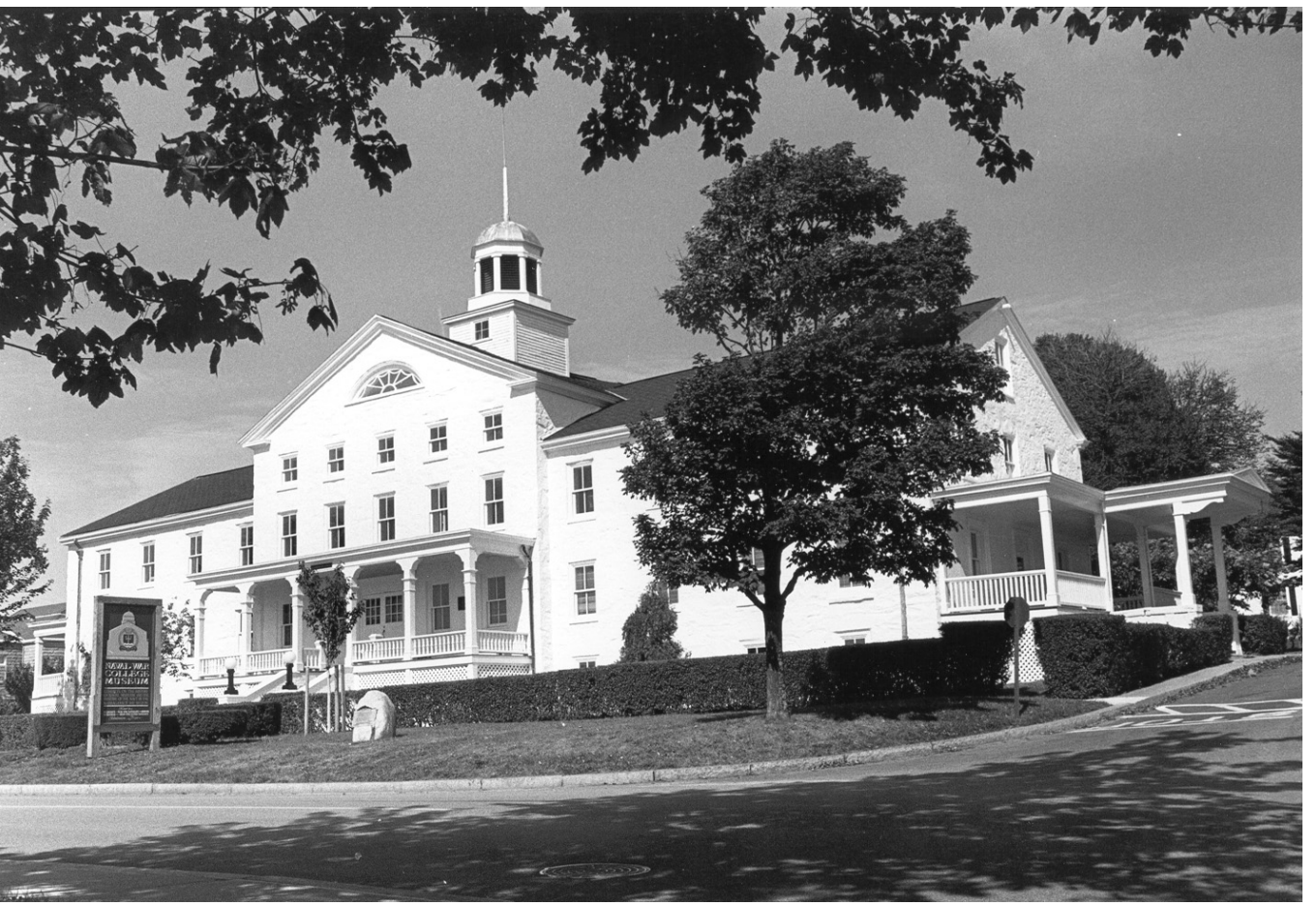

NAVAL WAR
COLLEGE
MUSEUM

CONTENTS

FROM THE EDITORS

As we noted in the Winter 2010 *Review,* the Navy's new maritime strategy places a premium on maritime security cooperation, which in turn suggests that the Navy has a heightened requirement to understand the maritime capabilities and outlooks of its various security partners. That issue addressed the important cases of the United Kingdom and Australia. In the present issue, the Republic of Korea Navy is the subject of an informed and searching analysis by Vice Admiral (Retired) Yoji Koda of the Japan Maritime Self-Defense Force. Admiral Koda may seem an improbable choice as author of a piece on this subject, but in fact he played an important role personally in initiating navy-to-navy staff talks between his country and the ROK in the late 1990s and has remained a close observer of Korean maritime affairs since that time. Admiral Koda provides an overview of the modern evolution of the ROK Navy from a modest coastal force in the 1950s to the increasingly blue water–capable fleet of today. His discussion of Japanese-ROK interaction at sea provides valuable insights into what might be called "third party" maritime security cooperation—something the United States needs to be keenly aware of as it seeks to strengthen its own bilateral relationships with foreign navies.

The U.S. Navy has been highly attentive to the possible implications of global climate change. The Arctic region has been a special focus of this attention, given the magnitude of recent changes in the climate there and the opportunities they afford for increased access to the waters and resources of the north. In their article "Arctic Security Considerations and the U.S. Navy's Roadmap for the Arctic," Rear Admiral David W. Titley, USN, and Courtney C. St. John explore these issues, their potential impacts on the Navy, and steps the Navy needs to consider in dealing with them. Rear Admiral Titley is Oceanographer of the Navy and Director, Task Force Climate Change.

Robert C. Rubel, in "The U.S. Navy's Transition to Jets," tells the important and neglected story of the Navy's struggle to adapt to jet aircraft beginning in the late 1940s. He argues that this transition was in fact not finally complete until the late 1980s, when accident rates in the Navy finally declined to a level approximating those in the Air Force, and explores in detail the reasons this was so.

Rubel, a retired naval aviator, is dean of the Center for Naval Warfare Studies at the Naval War College.

We return again in this issue to the seemingly intractable problem of Somali piracy. Lesley Anne Warner, of the Center for Naval Analyses, argues in "Pieces of Eight: An Appraisal of U.S. Counterpiracy Options in the Horn of Africa" that the key to success in countering piracy off the coast of Somalia lies in conceptually linking the positive elements of current sea-based counterpiracy methods with approaches designed to remedy the underlying instability ashore that produced piracy in the first place. This very comprehensive analysis strikes us as a useful contribution to an ongoing debate.

"China's Oil Security Pipe Dream," by Andrew S. Erickson and Gabriel B. Collins, gets to the heart of an issue that, perhaps more than any other, seems to be driving China's ambitious naval-modernization efforts. The authors argue that overland pipelines will never prove to be a serious alternative to seaborne transport of oil and gas for China, in spite of the strong support for them in some quarters, and that the Chinese would be better advised to explore cooperative steps to safeguard free energy markets and the seaborne flow of energy imports. Erickson is currently, and Collins was formerly, an associate of the Naval War College's China Maritime Studies Institute. Readers may want to consult in this connection an article by Collins and William S. Murray, "No Oil for the Lamps of China?" in the Spring 2008 *Review.*

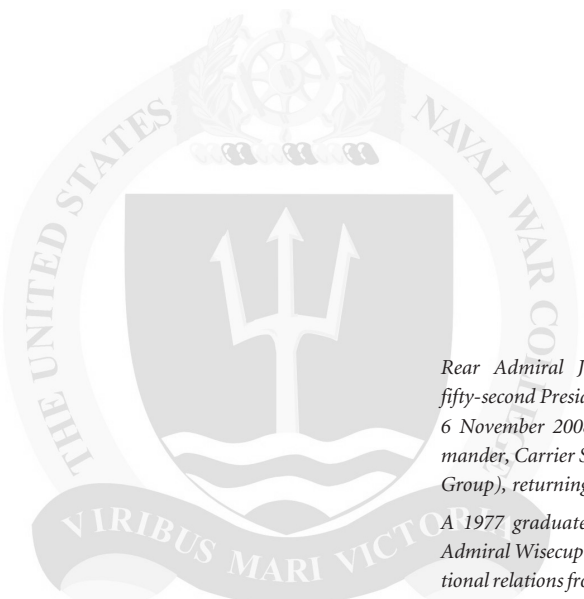
Finally, W. Brad Johnson, of the U.S. Naval Academy, and Gene R. Andersen, of the College of Operational and Strategic Leadership (COSL) at the Naval War College, offer an extended analysis of a key issue in naval and military leadership, "Formal Mentoring in the U.S. Military: Research Evidence, Lingering Questions, and Recommendations." Our next issue will feature an (overdue) discussion of the important and innovative work being carried out by the recently created COSL organization in Newport.

FORTHCOMING FROM THE NAVAL WAR COLLEGE PRESS

The next (and thirty-fifth) in our Newport Papers monograph series, *Piracy and Maritime Crime: Historical and Modern Case Studies,* edited by Bruce A. Elleman, Andrew Forbes, and David Rosenberg, is in press and has been posted on our website. Dr. Elleman, of the Naval War College Maritime History Department, and his coeditors have collected twelve case studies that allow conclusions to be drawn on uses and limitations of naval antipiracy operations in the context of new technology and modern national policy goals.

Also soon to be available for sale online by the U.S. Government Printing Office is *Nineteen-Gun Salute: Case Studies of Operational, Strategic, and Diplomatic Naval Leadership during the 20th and Early 21st Centuries,* edited by John B. Hattendorf

and Bruce A. Elleman. This collection of brief biographies of nineteen U.S. Navy admirals, from W. S. Sims to Joseph W. Preuher, with conclusions by the editors focusing particularly on leadership skills in the operational and strategic arenas, is sponsored by the Naval War College's College of Operational and Strategic Leadership and has been jointly produced by the Naval War College Press and the Government Printing Office.



*Rear Admiral James "Phil" Wisecup became the fifty-second President of the U.S. Naval War College on 6 November 2008. He most recently served as Commander, Carrier Strike Group 7 (*Ronald Reagan *Strike Group), returning from deployment in October 2008.*

A 1977 graduate of the U.S. Naval Academy, Rear Admiral Wisecup earned his master's degree in international relations from the University of Southern California, graduated from the Naval War College in 1998, and also earned a degree from the University of Strasbourg, France, as an Olmsted Scholar, in 1982.

At sea, he served as executive officer of USS Valley Forge *(CG 50) during Operation DESERT STORM. As Commanding Officer, USS* Callaghan *(DDG 994), he was awarded the Vice Admiral James Stockdale Award for Inspirational Leadership. He served as Commander, Destroyer Squadron 21 during Operation ENDURING FREEDOM after 9/11.*

Ashore, he was assigned to NATO Headquarters in Brussels, Belgium; served as Force Planner and Ship Scheduler for Commander, U.S. Naval Surface Forces, Pacific; and served as action officer for Navy Headquarters Plans/Policy Staff. He served as a fellow on the Chief of Naval Operations Strategic Studies Group; as Director, White House Situation Room; and as Commander, U.S. Naval Forces Korea.

Rear Admiral Wisecup's awards include the Defense Superior Service Medal, Legion of Merit, Bronze Star, and various unit, service, and campaign awards.

PRESIDENT'S FORUM

Greetings from Newport

HARD AS IT IS TO BELIEVE, we're halfway through our 125th anniversary year here at the Naval War College (NWC). This coming June, the six hundred or so graduates of the class of 2010 will be taking their places in the long line of Newport graduates who have gone on to serve their nations and their services with distinction. As the weather blows a gale here in Rhode Island, I'd like to take a moment to reflect about the College's mission of helping the Chief of Naval Operations define the future Navy. The College has been doing this for all 125 years of its history. To do this effectively, we have to think about the strategic environment that is over the horizon, and this is something that has been getting considerable attention here in Newport. In mid-December we hosted a small group of eminent scientists and historians to talk about emerging trends and phenomena, along with the lessons of history, as we proceed into a complex and uncertain future. The discussion was fascinating and helpful as we discussed subjects from the health of the oceans to climate change, causes of societal collapse in ancient history and their relevance for today and the future, and finally what might be asked of the Navy in the future. I tell you this so you will know the U.S. Navy is paying attention to the future, as you will see with Rear Admiral David Titley's article in this issue. Over a period of the past few months, the Navy commissioned a science-based "Task Force Climate Change," which Admiral Titley, Oceanographer of the Navy, heads up. He spoke at the recent United Nations summit in Copenhagen.[1]

Another example is "Task Force Energy," which is headed up by Rear Admiral Phil Cullom. During the "Naval Energy Forum" in October 2009, the Secretary of the Navy, the Honorable Ray Mabus, expressed five ambitious energy goals, which he reaffirmed as recently as 21 January, when he signed an agreement with

the Department of Agriculture. In case you missed some of this, here are his broad goals:

- When awarding contracts, appropriately consider energy efficiency and the energy footprint as additional factors in acquisition decisions.
- By 2012, demonstrate a Green Strike Group, composed of nuclear vessels and ships powered by biofuel. By 2016, sail the Strike Group as a Great Green Fleet, composed of nuclear ships, surface combatants equipped with hybrid electric alternative-power systems running on biofuel, and aircraft running on biofuel.
- By 2015, cut petroleum use in the Navy's fifty thousand–vehicle nontactical commercial fleet in half, by phasing in hybrid, flex fuel, and electric vehicles.
- By 2020, produce at least half of shore-based installations' energy requirements from alternative sources. Also 50 percent of all shore installations will be net zero-energy consumers.
- By 2020, half of the Department of the Navy's total energy consumption for ships, aircraft, tanks, vehicles, and shore installations will come from alternative sources.[2]

What else could come into play as we look ahead? Food distribution/security? The health of the oceans/rising ocean levels? Pandemic? Global economic meltdown? Some combination of these things? As I travel around, I feel there is a sense of anxiety in the country, and you can't help but feel it if you watch some of the recent disaster movies. My message is this: the Navy, with the help of the NWC, is watching and looking ahead at a wide range of possible futures, with a view to anticipating future requirements.

I've recently talked with Mr. Tomas Ries, director of the Swedish Institute of International Affairs, who provides a very interesting, overarching framework that situates not only the developed world but the rest of the world as well, providing a framework for viewing potential sources of conflict. From where I sit, the most interesting thing he highlights is that almost two-thirds of the world's population lives in what he calls "the zone of misery"—and today's drama playing out in Haiti is only the latest example. Though the United States is engaged in wars in Iraq and Afghanistan, the response to the agony and humanitarian disaster in Haiti shows how rapidly and effectively things can move into action when this nation decides to do so. The military support of our government departments and agencies as I write this (a week after the quake) has been impressive. For most of the Navy readers, however, we know these operations happen routinely, though normally on a much smaller scale. For example, during my time in *Ronald Reagan* Strike Group, we provided emergency aid to typhoon

victims in the Philippines, and we executed plans we had all discussed and planned well before deploying—all part of normal preparations, though we know each operation, each tragic disaster, will bring its own terrible, unique challenges and complexities. This is all set out in the "Cooperative Strategy for 21st Century Seapower"—it's simply part of the deal today, at least the backdrop.

Getting a useful grip on where the Navy should be headed is hard and continuous work. It requires a robust institution if it is to occur. The Naval War College is such an institution—advancing knowledge in "all matters relating to war, statesmanship connected to war, and the prevention of war," as its founder, Rear Admiral Stephen B. Luce, said. A quick scan of current NWC activities reveals the scope and intensity of the effort. The China Maritime Studies Institute has expanded and improved its library, our faculty is in demand, and we are working on a wide variety of gaming activities as a matter of priority.[3] The student/faculty research going on (Halsey, Stockdale, Mahan groups) is cutting-edge, very interesting, and helpful. Another development, which has come about over the past few years, is the solid connection developing with our fleet commanders as the Navy improves its focus on the operational level of war—this is the goal of our College of Operational and Strategic Leadership. To paraphrase Churchill, we want to develop captains of war, not just captains of ships. The result is that we are having a good bit of "saltwater pumped into Newport" directly from fleet operations worldwide, and there is a nice balance in place.

The natural focus of the incoming students is today's fight (one in three or four is returning directly from Iraq or Afghanistan). This is where the wonderful adaptability of our faculty comes into play—relating today's fight to classroom discussions and to our curriculum; however, we know here in Newport that our task is also to provide frameworks to our students based on enduring principles studied over long years. This has always been one of the primary, practical tasks here at the Naval War College. I refer you to Admiral William Sims's pamphlet that he circulated in 1912 at his own expense to all the officers of the Navy; it can be found online at www.usnwc.edu/presidentsjournal. We also chartered a "center for irregular warfare and armed groups" in November 2008, designed to capture the lessons of this fight for the future, with particular emphasis on the maritime domain.

James Fallows quotes the president of Princeton, Shirley Tilghman: "U.S. higher education has essentially been our innovation engine . . . even with all its challenges at the moment."[4] That certainly includes the Naval War College, even knowing that not every student officer will become a flag or general officer or Chief of Naval Operations, and that not every paper, conference, or operational

game will produce "game changing" ideas. As one of my faculty members put it, investing in the Naval War College is almost like venture capital.

The lesson of the history of the College, at least as best I can decipher it from my own reading, is that the value is in the persistence of study and insights gained over time, the capability to sustain them being a function of a robust institution. The other lesson made clear to me during my first year here is that frustration in problem solving leads to innovation—naval officers are nothing if not problem solvers, and this would seem logically to lead to adaptation. A recent report from Britain's Defence Academy indicates frustration with British institutions, going as far as to call them "incapable of fighting modern wars . . . and suggest[ing that] the Western education system was designed for a previous age and [can]not adapt to future challenges."[5] Worth a look for sure. The research and gaming effort at Newport is only half of the equation. The College works to help the Navy adapt to the future by providing a first-class, graduate-level education to future military and civilian leaders, an investment in our ability to outthink our adversaries in future wars, and to adapt to changing circumstances. When I was a student here in 1998, my professors helped me understand the lessons of insurgencies, including El Salvador and the American Revolution. NWC graduates like Generals Odierno and McChrystal are applying those lessons in today's conflicts. Clausewitz said that war is "more than a chameleon";[6] no two wars are the same. However, by providing students with a framework and the intellectual tools we can equip them to think creatively about how to deal with the unanticipated curveballs that are hurled their way. Along with original research, these are the cornerstones of what we're doing today, what we've done here at the Naval War College for 125 years.

JAMES P. WISECUP
Rear Admiral, U.S. Navy
President, Naval War College

NOTES

1. Bob Freeman, "Oceanographer of the Navy Speaks at U.N. Climate Change Summit," NNS091217-09, 17 January 2010, Office of the Oceanographer of the Navy, www.navy.mil/search/display.asp?story_id=50245.
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6. Carl von Clausewitz, *On War,* ed. Michael Howard and Peter Paret (Princeton, N.J.: Princeton Univ. Press, 1984), p. 89.

Vice Admiral Yoji Koda is a graduate of Japan's National Defense Academy, the JMSDF Officer Candidate School and Naval Staff College, and, in 1992, the U.S. Naval War College. As a vice admiral he commanded the Fleet Escort Force (2003–2004), later serving as Director General of the Joint Staff Office, commandant of the Sasebo JMSDF District, and as Commander in Chief, Self-Defense Fleet, from 2007 until his retirement in 2008. He has written widely on history and security in both Japanese and English; his most recent English-language article appeared in the Naval War College Review *(Spring 2005). His "From Alliance to Coalition, Then Where?" will appear in 2010 in* Maritime Strategy and National Security in Japan and Britain: From the First Alliance to Post 9/11, *edited by Alessio Patalano, to be published in the United Kingdom by Global Oriental.*

THE EMERGING REPUBLIC OF KOREA NAVY

A Japanese Perspective

Vice Admiral Yoji Koda, Japan Maritime Self-Defense Force (Retired)

On 21 May 1997 the author, then director of the Policy, Plans, and Programs Division, in the Maritime Staff Office of the Japan Maritime Self-Defense Force, attended a preparatory meeting for proposed navy-to-navy staff talks for the exchange of opinions on various maritime and naval subjects with the Republic of Korea Navy. My counterpart at this meeting, which was held at a navy facility in Taejung, in the central region of the Republic of Korea, was the Naval Policy Director of ROKN* Headquarters.

Navy-to-navy talks symbolize military exchanges between countries. The JMSDF has had such talks with the U.S. Navy, an allied partner, for a long time and also with the United Kingdom's Royal Navy, regarded as a "father" of modern navies. During the mid-1990s the JMSDF began to have such talks with the Royal Australian Navy, which has close relations with the navies of many Southeast Asian nations. The JMSDF hopes that the Australian navy can help it bridge historical gaps in relations—arising from the wariness in these countries caused by the bitter experience of World War II—between the JMSDF and Southeast Asian navies. Military-to-military exchanges developed rapidly in those years, as a part of the new international exchanges that arose in the post–Cold War era, so the establishment of a close relationship with the ROKN had become a serious and urgent issue for the JMSDF. For all these reasons, I, as an official responsible for JMSDF policy in MSO, proposed to meet with my counterpart in the ROKN as a preliminary measure.

Because our meeting was held before the start of official exchanges, and because we did not know each other, the atmosphere was awkward at first. However,

* All abbreviations used in this article are expanded in the sidebar on page 16.

as time passed, we gradually became friendly, finding that we had much in common as sailors. A number of exchanges followed fairly quickly, and in the years since then the relationship between the two navies has deepened. Still, the history of this official relationship between the JMSDF and the ROKN is very short—only about ten years—when one considers the geographical proximity between the two nations; true mutual understanding has yet to mature. Much can still be done to bring the JMSDF and ROKN closer together.

It is for that reason, and from that perspective, that I, as a former leader of the Japan Maritime Self-Defense Force, would like here to examine comprehensively the Republic of Korea Navy. I will discuss the whole service, except for (though they are officially part of the ROKN) the ground forces of the Republic of Korea Marine Corps.

WATERBORNE FORCES IN ANCIENT KOREA

The history of maritime armed forces in the Korean Peninsula originates with those that fought during the unification of the peninsula. The chronicles of the Three Kingdoms of Korea—Baekje, Goguryeo, and Silla—record the activity of these waterborne forces. For a typical example, in the latter half of the fourth century, King Kwanggaeto of Goguryeo attacked and conquered Baekje by effective use of naval forces.[1] His conquest is remembered today in the name of the first ship of the KDX-I destroyer class—*Kwanggaeto Daewang* (Kwanggaeto the Great).[2]

When the Mongolian Yuan dynasty, which had conquered China and central Eurasia, invaded the Korean Peninsula in the mid-thirteenth century, the Goguryeo dynasty evacuated its capital to Ganghwado Island, two kilometers off the coast. The sea forces of Goguryeo protected their island capital from fierce Yuan attacks for about thirty years. The Yuans, whose Mongolian cavalry was overwhelming on land, were poor at combat on the water; nonetheless, this success was a noteworthy event in the history of the waterborne forces of the peninsula.[3]

The next prominent event in Korean naval history was the successful protection of its coasts from Japanese pirates, known as the "Wa-ko," whose lawless activities became significant in the late fourteenth and early fifteenth centuries. Korean forces protected the population and coastal villages from Wa-ko assault and later neutralized the pirate base in the islands of the Tsushima Strait, between Kyushu and the peninsula.[4]

In the late sixteenth century a Korean hero, Yi Sun-Shin, became an unforgettable figure in the history of the Korean Peninsula. Hideyoshi Toyotomi, who had emerged supreme after a century-long reunification war in Japan, twice sent huge expeditionary forces to the Korean Peninsula, as part of his strategic goal of

conquering the Ming dynasty of China; however, the Japanese forces were, in general, unsuccessful. Yi Sun-Shin interrupted the Japanese supply lines at sea several times, sometimes causing serious problems. In 1598 Hideyoshi suddenly died, and the Japanese forces started to withdraw. Taking full advantage of this change of tide, Yi Sun-Shin, together with Ming naval forces, attacked a retreating Japanese convoy off the coast of the peninsula. He made good use of intelligence, local topography (marked by islands and narrow straits), tactics (especially surprise attack and separation of the enemy), and equipment (such as "turtle ships," which were heavily protected by iron armor casements of a turtleback shape) and finally defeated the sea forces of Japan. The Korean-Chinese combined force reportedly sank two hundred out of five hundred Japanese ships, putting an end to a seven-year-long war on the Korean homeland.[5] The tragic loss of Yi Sun-Shin in the final action made him a true hero—a man who saved the Korean nation at the cost of his life. Even today, the Koreans respect him as a savior of their country. To commemorate his achievement, the lead ship of KDX-II destroyer class was named *Yi Sun-Shin.*

THE FOUNDING OF THE ROKN: THE IMPACT OF THE KOREAN WAR

On 11 November 1945, soon after the end of World War II in the Pacific, a merchant mariner, Son Won-Il, established the Maritime Affairs Association, which later developed into the Korean Coast Guard. With the establishment of the ROK government on 15 August 1948, the coast guard was renamed the Republic of Korea Navy, with Son as its first Chief of Naval Operations. Of the four services of the ROK Armed Forces, the navy has, accordingly, the longest history. (In 2007 the first of the ROKN's cutting-edge Type 214 submarines was named *Son Won-Il,* after this father of the South Korean navy.)

The Korean War erupted with a surprise attack and invasion by North Korean forces in June 1950. The ROKN participated in the fighting that followed, together with the navies of the United Nations coalition. Maritime operations in this war were exclusively in favor of the UN forces; the North Korean navy had only a coastal capability, whereas the UN naval forces, with elements of the U.S. Navy at their center, had overwhelming power.

At that time, the ROKN was not yet able to wage modern maritime warfare beyond coastal seas; it was still too immature, the outbreak of the war having come immediately after its establishment. The personnel strength of the ROKN was about seven thousand, to the North Korean navy's estimated fourteen thousand.

Continued on page 17

ABBREVIATIONS

AMS	auxiliary minesweeper
AO	auxiliary oiler
AOR	auxiliary replenishment oiler
APD	auxiliary personnel transport destroyer
ARL	auxiliary repair light
ARS	auxiliary rescue/salvage ship
ASR	auxiliary submarine rescue ship
ASROC	antisubmarine rocket
ASUW	antisurface warfare
ASV	antisurface vessel; antisurface vehicle [e.g., Lynx helicopter]
ASW	antisubmarine warfare
CVSG	aircraft carrier strike group
DD	destroyer
DDG	guided-missile destroyer
DE	destroyer escort
FAC	fast attack craft (gun)
FFG	guided-missile frigate
FFS	fast frigate, small
FRAM	Fleet Rehabilitation and Modernization
FS	frigate, small
FSG	guided-missile frigate, small
JML	Japanese minelayer
JMSDF	Japan Maritime Self-Defense Force
KDX-I	first generation of destroyers designed and built in South Korea
KDX-II	second generation of destroyers designed and built in South Korea
KDX-III	Aegis DDG, third generation of destroyers designed and built in South Korea
KSS	Korean midget submarine
LPD	landing platform, dock
LSM	landing ship, medium
LSMR	landing ship medium, rocket
LSSL	landing ship support, large
LST	landing ship, tank
MCM	mine countermeasures
MHC	minehunter, coastal
ML	minelayer
MSC	minesweeper, coastal
MSO	Maritime Staff Office [JMDSF]
PC	patrol craft (submarine chaser)
PCE	patrol craft, escort
PCF	patrol craft, fast
PCS	patrol craft, sweeper
PF	patrol frigate [World War II construction]
PG	guided-missile patrol boat
PKM	patrol killer boat, medium
PLA	People's Liberation Army
PT	patrol torpedo boat
ROK	Republic of Korea
ROKN	Republic of Korea Navy
SLOC	sea line of communication
SMG	Strategic Mobile Group
SS	conventionally powered [diesel-electric] attack submarine
SSN	nuclear-powered attack submarine

Continued from page 15

With regard to large combatant ships, the ROKN had in 1951 only two outdated, World War II–vintage patrol frigates capable of operations on "blue water"—that is, on the high seas, away from home waters. Beyond these two ships, there were only about ten coastal minesweepers of U.S. and Japanese build, as well as ten small patrol craft (see table 1).

TABLE 1
ROKN STRENGTH IN 1951 (MAJOR COMBATANTS)

PF	2	U.S.-built, 1,500 tons
PC	4	U.S.-built, 1,300 tons
AMS	13	U.S.-built, 300 tons, wooden coastal minesweeper
JML	10	Details unknown, minelayers of the Imperial Japanese Navy
LSSL	2	U.S.-built, 230 tons
Others	Japanese-left gunboats (22), former Japanese coastal patrol crafts (8), self-propelled oil barges, tugboats, and various service craft	

Source: All numerical data in the charts in this article are from the *Jane's Fighting Ships* of each year. The type designations (DD, SS, PGM, etc.), which vary in successive editions of *Jane's,* are the author's own. See the sidebar for a legend.

In spite of these handicaps, the ROKN took great pride, and found a strong spiritual foundation, in the fact that though the smallest service in the South Korean Armed Forces, it had engaged in combat with great courage and effectiveness in the war's most difficult period, the first years after the state's establishment.[6] The highest operational command billet—Commander in Chief, ROK Fleet—was established in September 1953, soon after the armistice agreement was signed in July.[7]

1960 TO THE EARLY 1980S: LAYING THE "BEDROCK"

Over the next two decades, the ROKN continued to build its fleet as a main pillar of deterrence against invasion by North Korea, in full compliance with its national defense commitments under the ROK-U.S. alliance. At that time, because of the nature of the South–North confrontation, the nation had no other option than to emphasize building up the army. The core of the ROK fleet comprised surface ships given by or rented from the U.S. Navy (see table 2).

Around 1960, the ROKN beefed up the numbers of both DEs and PFs and increased its force of patrol boats, such as PCs. Additionally, the navy rapidly reinforced its amphibious-warfare ships, including LSTs. The ROKN was trying to improve its capabilities in coastal defense against small craft from the North, and in amphibious warfare, which would provide South Korean ground forces operational flexibility in case of invasion.

TABLE 2
ROKN STRENGTH 1960–80 (MAJOR COMBATANTS)

	1960	1970	1980
Total Personnel	16,600	16,600	20,000
DD			5 U.S.-built, 2,500 tons
DD			2 U.S.-built, 2,200 tons
DD		3 U.S.-built, 2,000 tons	3
DE	2 U.S.-built, 1,500 tons	2	
DE		1 U.S.-built, 1,500 tons	1
PF	4 U.S.-built, 1,500 tons	4	
PCE		3 U.S.-built, 900 tons	3
PC	4 U.S.-built, 650 tons	8	
PC	5 U.S.-built, 300 tons	4	
PCS		2 U.S.-built, 250 tons	
APD	1 U.S.-built, 1,400 tons	6 (ex-high-speed transport)	
PT	3 U.S.-built, 30 tons		
PG			8 U.S.-built, 250 tons 4 Korean-built
PG			1 U.S.-built, 250 tons
PKM			6 Korean-built, 80 tons
MSC	3 U.S.-built, 320 tons	6	8
AMS	10 U.S.-built, 300 tons	5	
LST	8 U.S.-built, 1,600 tons	8	8
LSMR		1 U.S.-built, 1,000 tons	1 (ex-LSM with rockets)
LSM	12 U.S.-built, 800 tons	11	11
LSSL	5 U.S.-built, 230 tons		
ARL		1 U.S.-built, 2,400 tons	1 (ex-LST repair ship)
AO	1 Norwegian-built, 1,400 tons	1	1
Others	Patrol crafts, self-propelled oil barges, tugboats, and various service crafts		

Source: The official personnel strength of ROKN is not available in open sources like *Jane's*. The total number of personnel in the ROKN used in the charts was calculated by subtracting ROK Marine Corps strength from the sum of the "active duty service members" and "draftees" given in *Jane's*.

In about 1970, the ROKN introduced U.S. Navy *Fletcher*-class destroyers, which, though already obsolete, were superior in surface combat capability, with their five-inch guns, to what the navy had possessed in the past. In addition, the ROKN steadily introduced new patrol craft. As a result, deterrence was strengthened against the North Korean navy, which was estimated to be good at small-craft operations. In regard to amphibious ships, the ROKN by 1970 still had the same strength as in 1960; apparently it had achieved its goal at this point as far as the number of landing ships was concerned.

In the late 1970s and early 1980s, the ROKN received from the U.S. Navy a number of *Gearing*- and *Allen M. Sumner*–class destroyers that had gone through the American Fleet Rehabilitation and Modernization (FRAM) program.[8] As a result, the operational capability of the ROK fleet jumped. However, the ASROC (antisubmarine rocket) system, which was one of the centerpieces of the FRAM modernization of these still-capable World War II–era destroyers that were retained in U.S. service, was not installed on the units transferred to the ROKN.

Perhaps at this time the ROKN preferred to improve its capability in surface combat rather than that in ASW. If so, a reason might have been that Western navies at that time estimated the threats posed by North Korea to be

- Sea denial against U.S.-led naval forces, by submarine force and mines
- Confusion, spread by special operations forces
- Surprise assault landings, by large numbers of small landing craft and boats.

However, the most likely reason for a strong emphasis on surface combat instead of ASW is that the South Korean navy put more focus on the second and third of these threats than on the first. The ROKN might have based such an assessment on an internal evaluation based on shared national origin—that is, on unique insight, unavailable to analysts of other navies—of the operational capability of the North Korean navy.

In this period the ROKN decommissioned old U.S.-built ships that it had used since its founding. At the same time, it replaced obsolete patrol boats with new guided-missile patrol craft and small patrol boats, built by the Tacoma Shipyard in the United States. In addition, some PGs were built in-country. In this way the ROKN improved its capability in the area of coastal operations by small patrol craft.

In contrast, however, the buildup of the mine-warfare and MCM forces, including coastal minesweepers, was slow. Apparently, the ROKN was uninterested in building up its MCM force. The South Korean navy was similarly

uninterested in underway logistics; it purchased only one large oiler, from Norway. The main mission of the navy in this period was still coastal defense, not blue-water operations.

In these years the Republic of Korea participated in the Vietnam War, with the ROKN deploying transport ships to the South China Sea. In home waters, on 19 January 1967 a U.S.-built PCE was sunk in the Sea of Japan north of the Military Demarcation Line by North Korean shore batteries.[9] In June 1970, an ROKN vessel that had been broadcasting propaganda to the North was captured by a North Korean patrol craft.[10]

During the 1970s, the administration of President Pak Chung-Hee developed and announced an "eight-year national defense plan" intended to build a self-reliant national defense capability.[11] On the basis of this plan, the ROK started to construct a fleet using its domestic technology and industrial resources. Noteworthy products of this plan were the *Ulsan*-class frigates, with displacements of two thousand tons, and the *Pohang*-class corvettes, of one thousand tons. The ROKN eventually constructed, respectively, nine and twenty-four of these types, which have been regarded as the workhorses of the fleet in coastal operations. Since then, the ROKN has constructed almost all of its own major combatants, at several shipyards.

LATE 1980S–2000: STABILIZATION, THEN RAPID ADVANCE

In the latter half of the 1980s modernization became conspicuous, with the introduction of new equipment, state-of-the-art technology, and new ships of domestic construction (see table 3).

TABLE 3
ROKN STRENGTH 1980–2000 (MAJOR COMBATANTS)

	1980	1990	2000
Total Personnel	20,000	35,000	40,000
SS (209)		1 German-built 2 Korean-assembled	8 Korean-built after fourth boat
KSS		6 Korean-built, midget submarines	11
KDX-1 (11)			3
DD	5 U.S.-built, 2,500 tons	7	5
DD	2 U.S.-built, 2,200 tons	2	
DD	3 U.S.-built, 2,000 tons		

TABLE 3 CONTINUED
ROKN STRENGTH 1980–2000 (MAJOR COMBATANTS)

	1980	1990	2000
DE	1 U.S.-built, 1,500 tons		
FFG		7 Korean-built, *Ulsan*	9
FS/FSG		18 Korean-built, *Pohang*	24
FS		4 Korean-built, *Dong-Hae*	4
PCE	3 U.S.-built, 900 tons		
PG	8 U.S.-built, 250 tons 4 Korean-built	8	5
PG	1 U.S.-built, 250 tons	1	
PKM	6 Korean-built, 80 tons	36 *Sea Fox*	
PCF		32 *Sea Dolphin*	54
PCF		2 *Wildcat*	47
ML			1 *Wonsan*
MSC/MHC			1 *Yangyang*
MHC		3 licensed production, *Swallow*	
MSC	8 U.S.-built, 320 tons	8	8
LST	8 U.S.-built, 1,600 tons	8	6
LST			4 *Alligator*
LSMR	1 (ex-LSM with rockets)		
LSM	11 U.S.-built, 800 tons	7	3
ARL	1 (ex-LST repair ship)		
AO	1 Norwegian-built, 1,400 tons		
AOR			3 *Chunjee*
ASR			1 *Chunghaejin*
ARS		2 U.S.-built, 1,500 tons	2 U.S.-built, 3,000 tons
Others	An oceanographic research ship, a variety of auxiliary ships, and various service craft		

The ROKN selected the German-developed Type 209 submarine for its first-generation submarine (known as the *Chang Bogo* class). The navy imported the first boat; the South Korean shipbuilding industry assembled the second and

third boats; and the fourth was built in-country, from keel laying to final fitting-out. By this means, the ROKN, which had started its submarine force from nothing, paved the way to a real undersea-warfare capability—establishing training procedures for the crews, developing operational concepts, and learning the technology needed for building diesel-electric submarines.

Additionally, while introducing the new SSs, the ROKN planned to establish a submarine-rescue posture, indispensable for a submarine-operating navy. To this end the navy introduced two submarine-rescue ships from the U.S. Navy and ordered a Korean-built unit, *Chunghaejin,* along with the other measures necessary to realize an appropriate and viable submarine-rescue capability.

As for destroyers, the ROKN seems to have set itself a goal of about ten DDs that were superior in surface combat power to those of the North. In this period it replaced six of eleven old, U.S.-built destroyers with three KDX-I units (the *Kwanggaeto Daewang* class), trading a reduction in the total number of units for improved capability.

Furthermore, the ROKN replaced its diverse collection of U.S.-built patrol boats and craft with a force made up of two types, the *Ulsan* frigates and *Pohang* corvettes. This improved not only practical operational capability but also rationalized education, training, and logistic support. In other words, the Navy made a successful transition from a posture of many types with a few ships each to the one with a few types with many ships each.

In general, and though the number of destroyers dropped, the operational capability of the ROK fleet, focused as it was on coastal defense against the North Korean navy, apparently reached the level that the ROKN had envisioned. With respect to ASW, however, it was inadequate, even after the introduction of the three KDX-I destroyers and the Lynx helicopter. The ASW posture of the ROKN still remains questionable today, in relation to the perceived threat of North Korean submarines and the geopolitical nature of the country. Where the ROKN had once depended heavily on U.S.-built small patrol craft, in the 1980s and 1990s it made rapid progress in producing its own vessels, building a large number of domestically developed *Sea Dolphin*–class and *Wildcat*-class PCFs. A buildup of the defenses of South Korean territorial waters was continually required, even "demanded," of the ROKN by clandestine intrusions of North Korean boats and small craft, which had continued ever since the war.

We can see in these facts a consistent ROKN policy toward the stark realities of South–North confrontation and East–West rivalry that faced it—that is, friction and tension on the peninsula against the background, in the first part of the period, of the Cold War and then of the unstable post–Cold War international order that followed. Judging from statistics, the ROKN needed about a hundred PCFs, including small PKMs (the *Sea Fox* class), to take proper measures against

clandestine intrusion attempts from the sea and suspicious boat movements off both coasts of the peninsula. In June 1999, for instance, a conflict occurred between small craft of the South and North near the Northern Limit Line off the west coast of the peninsula. In June 2002 another engagement, including an exchange of fire, occurred in the same waters; the ROKN lost a patrol craft, *PKM-357*.

A heavy burden was thus imposed on the ROKN by the nation. In contrast, the JMSDF is relatively free of this burden, partly because larger distances reduce the small-boat threat, and partly thanks to Japan's coast guard. This difference underlies clear contrasts that can be seen in the force-planning assumptions of these two neighboring navies.[12]

In the area of amphibious warfare, the South Korean navy decommissioned in these years a large number of U.S.-built LSTs and LSMs. It filled the gap with four domestically built, higher-performance LSTs of the *Alligator* class. As for MCM ships, the navy introduced a minelayer, *Wonsan,* and several *Yangyang*-class MSCs/MHCs, together with *Swallow*-class MHCs. Finally, the ROKN saw some improvement in its MCM operational capabilities; however, progress was still slow. At the end of this period, three Korean-built, *Chunjee*-class AORs, which could steam with surface forces at high speed, were introduced to the fleet. This improved substantially the fleet's capability to support operations on the high seas.

In the last two decades of the century, specifically in the late 1990s, modernization in the ROK fleet, both in quality and quantity, was conspicuous. This trend was supported by a noteworthy change-of-command speech of the twentieth Chief of Naval Operations, Admiral Ahn Byung-Tae, who made it clear that the ROKN would aim to become a blue-water navy.[13]

THE PRESENT: REALIZING THE GOAL OF A BLUE-WATER NAVY

The ambitious force buildups of the 1990s seem to have given the Republic of Korea Navy sufficient operational defenses in coastal and regional waters against the periodic, unpredictable attempts of the North Korean navy. Meanwhile, the South Korean state and people have developed strong national interests beyond the northwest Pacific region, especially in extensive trade with foreign nations and in the sea lines of communications over which that trade is carried. The South Korean navy has, accordingly, established a basis for a distant-operations capability of which it had long dreamed; it is safe to say that quest continues today. The progress of the ROKN toward a blue-water fleet merits the attention of other navies in the region, even the rest of the world (see table 4).

As for submarines, the ROKN has started to construct the *Son Won-Il* class, the new German-developed Type 214, with air-independent propulsion. The U.S.-built DDs have now disappeared from the fleet, and the ROKN has started

TABLE 4
ROKN STRENGTH 2000–2008 (MAJOR COMBATANTS)

	2000	2008
Total personnel	40,000	41,000
SS (209)	8 (Korean-built after fourth boat)	9
SS (214)		1
KSS	11 Korean-built, midget submarines	11
KDX-I	3	3
KDX-II		4
KDX-III		1
DD	5 U.S.-built, 2,500 tons	
FFG	9 Korean-built, *Ulsan*	9
FS/FSG	24 Korean-built, *Pohang*	24
FS	4 Korean-built, *Dong-Hae*	4
PG	5 U.S.-built, 250 tons + 4 Korean-built	
FAC	54 Korean-built, *Sea Dolphin*	83 (total number of FACs)
FAC	47 Korean-built, *Wildcat*	
ML	1 Korean-built, *Wonsan*	1
MSC/MHC	1 Korean-built, *Yangyang*	3
MHC	6 licensed production, *Swallow*	6
MSC	8 U.S.-built, 320 tons	
LPD		1 Korean-built, *Dokdo*
LST	6 U.S.-built, 1,600 tons	2
LST	4 Korean-built, *Alligator*	4
LSM	3 U.S.-built, 800 tons	
AOR	3 Korean-built, *Chunjee*	3
ASR	1 Korean-built, *Chunghaejin*	1
ARS	2 U.S.-built, 3,000 tons	2
Others	Patrol boats, oceanographic research ship, and various service craft	

six KDX-IIs (the *Chungmugong Yi Sun-Shin* class) and three KDX-IIIs (*Sejong Daewang* class), almost in parallel. The KDX-III is equipped with the latest Aegis combat system. By the time this program is completed, the ROK fleet's destroyer

force will reach the level of the leading navies of the world. With respect to small, fast patrol boats, the ROKN has kept its strength at around eighty units, a number achieved by 2000. These boats have remained in frontline service, with the main mission of the coastal defense, together with the larger *Ulsan* and *Pohang* ships. However, it is about time for the ROKN to start planning for their replacements; these large and small patrol units will soon be reaching the ends of their service lives.

For amphibious warfare, the South Korean navy has one LPD, *Dokdo,* and four *Alligator*-class LSTs. Only two of the old U.S.-built LSTs remain today. The ROKN has also introduced high-speed air-cushion landing craft, which are expected to improve the capability of the amphibious force in terms of quality; meanwhile, the service seems to be reviewing the strategic concept of its amphibious force and accordingly the number of landing ships it requires.

Underlying all this activity may be an ROKN strategic estimate that South Korea has substantially surpassed North Korea—thanks to the country's overwhelming economic growth in recent years—and that the capability and possibility of all-out, full-scale invasion into the South by the North are extremely low. The navy apparently also thinks that the ROK military, together with U.S. forces, could surely interdict and repel such an invasion, except in a nuclear scenario. The buildup of the amphibious force in quality at the expense of quantity may reflect such an estimate.

Also, one aspect of the amphibious program can be seen as a fresh approach to the international situation. The ROKN is now fully aware of the new missions of international contribution and cooperation, such as peacekeeping and humanitarian-assistance and disaster-relief operations. The South Korean navy learned a vital lesson from bitter experience when it found itself unable to participate sufficiently in the multinational relief operations on northern Sumatra, in Indonesia, after the earthquake and tsunami in December 2004. Memories of this episode may well be reflected in multirole amphibious ships projected for the future.

In the area of mine warfare, the ROKN has decommissioned all eight of its outdated U.S.-built MSCs. Its new mine-countermeasures force is composed of three *Yangyang*-class MSCs/MHCs and six *Swallow*-class MHCs, all of domestic construction but carrying new, foreign-developed MCM equipment. The South Korean navy has apparently improved the quality of its MCM force, but its quantity seems not yet sufficient for the current security and military situation around the peninsula. In the realm of underway replenishment, which is indispensable if the ROKN is to become a real blue-water navy, the ROK fleet has its three domestically built *Chunjee*-class AORs. These three replenishment oilers seem to meet the operational requirement today.

With respect to the naval aviation, the ROKN has replaced its old S-2 maritime surveillance and patrol aircraft with new P-3Cs. Thanks to these new aircraft, the ocean-surveillance capability of the ROK fleet has substantially improved; however, only eight P-3Cs are now in the inventory. Otherwise, the navy is introducing new multimission Lynx helicopters, useful for antisurface and antisubmarine warfare. The strength of the Lynx helicopter force, which numbers twenty-five today, seems enough for shipboard operations on board the new KDXs and for land operations (see table 5).

TABLE 5
NAVAL AVIATION 1990–2008

	1990	2000	2008
P-3C maritime surveillance and patrol		8	8
S-2A/F maritime surveillance and patrol		8	8
Lynx helicopter (ASV)	12	17	12
Lynx helicopter (ASW)		13	13
F-406 (fixed-wing small-size at-sea surveillance aircraft)		5	

With regard to the growing trend toward a navy capable of operations in distant waters, two important new initiatives were taken by the present Lee Myung-Bak administration in 2009. In March, the government authorized ROKN participation in international antipiracy operations in Gulf of Aden; in May, South Korea became the ninety-fifth nation to join the Proliferation Security Initiative. These decisions clearly show the government's intention to make the Republic of Korea a nation of greater international responsibility and influence. They also show its determination to use its capable navy as a tool to realize national objectives. The ROKN today seems to have sufficient capability to support and respond fully to the growing expectations and requirements of its nation's government and people.

TO THE FUTURE

The Republic of Korea Navy's recent emphasis on the construction of a blue-water navy is understandable if its perception of the threat has in fact changed from that of previous years. As implied above, the military capability of North Korea to fight a conventional, full-scale war against the South seems to be declining. However, the North is still capable of small but determined intimidating or trap-setting operations along the coast of the peninsula.

Missions/Resource Allocation: Coastal Defense and Blue-Water Operations

The South–North confrontation still continues, against the background of an unchanging geopolitical and strategic environment defined by the close proximity of such powerful nations as China, Russia, and Japan. Accordingly, the ROKN has made coastal defense its main mission since its foundation, and it may have to do so for the foreseeable future.

The question, then, becomes: How can the South Korean navy improve its blue-water capability—which is its strongly held goal, perceived as the mark of a mature navy—and at the same time protect the nation's coasts? The tempo of distant operations will surely continue to grow in the future, but an appropriate balance will have to be maintained—not an easy job for the strategic thinkers and force planners of the ROKN. Beyond that, every country has only finite resources, especially in terms of budget. The course the Republic of Korea Navy chooses to take through these obstacles and challenges will be of much interest to regional navies.

Antisubmarine Warfare

Three factors (strategic, tactical, and geopolitical) bearing upon South Korean ASW must be taken into consideration, and they lead clearly to an overall conclusion, or implication.

First, the ROKN's present ASW assets—twelve destroyers, of three types; two dozen Lynx helicopters, and eight P-3Cs—are not sufficient. Second, the region's unique geography and oceanography make for a highly complex and difficult ASW environment, one requiring special consideration and measures. The Korean Peninsula is, by definition, surrounded with water on three sides. The mountainous east coast faces the deep and steeply shelving Sea of Japan. To the south a complicated coastline, with scattered small islands and two large ones farther out to sea (Tsushima and Cheju), faces the east and west channels of the Tsushima Strait, which in turn connects the Sea of Japan and the East China Sea. The west coast is also complicated, but its topography is relatively flat; it abuts the northern part of the East China Sea and the Yellow Sea, which is shallow for long stretches and where a great tide differential exists. Third, the navies of all the neighboring nations—Russia, China, Taiwan, and Japan—as well as that of the United States, an allied partner of South Korea, operate submarines in these waters.

The conclusion is that the ASW capability of the ROKN plainly requires improvement in both quality and quantity.

Quite aside from the threat posed by North Korean submarines (most of which are obsolete), the need to collect subsurface information on surrounding waters and on deployed submarines of other navies makes ASW capability for

the ROK fleet a precondition of status as a navy capable of distant operations. The ROK-U.S. alliance, with the intelligence exchange it brings, could be of some help in this context, and certainly the possibility is very small that South Korea will go to war with any of these nations; nevertheless, the navy must establish its own comprehensive ASW capability, built around adequate ocean surveillance capabilities.

Additionally, of course, credible tactical ASW capability—search, detection, tracking, identification, and attack, as well as postattack analysis—has real significance to the ROK fleet today. In fact, a sufficient ASW capability, supported by underwater surveillance, is a must, a prerequisite for combined operations under the ROK-U.S. alliance with the American carrier strike groups that would be deployed in a contingency on the Korean Peninsula or in the northwest Pacific. Also, should a crisis occur involving Japan, a CVSG responding under the Japanese-U.S. alliance would operate in the same waters as it would in a Korean crisis per se; the ROKN could not be indifferent to that. In any case, and in any grave contingency, the protection of an American CVSG operating around the peninsula or in the northwest Pacific from all kinds of threats, in particular submarines, would become the most important mission of the ROK fleet. In this respect especially, antisubmarine warfare, especially underwater surveillance and a strong tactical capability, has great significance for the South Korean navy.

Submarines

Today, the ROKN has a robust submarine force composed of nine Type 209 and several (eventually nine) Type 214 boats. However, the navy's strategic objectives and operational concepts for its capable submarine force are not clear, at least from the viewpoint of some foreign experts. In other words, they would ask: How and against whom would the ROKN use its capable submarines? A tactical question also remains unanswered: "Would the main task of its submarines be antisubmarine or antisurface warfare?"

If the answer is ASW, the current composition of the ROK fleet seems rather unbalanced. The strength of the submarine force is disproportionately high in comparison to that of other antisubmarine assets, such as destroyers, maritime patrol air, and helicopters. The buildup of the submarine force has been too quick; too many submarines now exist but too few platforms of other kinds.

But maybe the answer is ASUW, and that would be understandable, given that the most important historical mission of ROKN has been defense of coastal waters against covert operations by small surface craft from North Korea. However, the submarine seems generally unsuitable for this type of ASUW. In light of the importance of ASW capability, the ROKN may have been building its forces in a way incompatible with its historical position and security needs. That is, if it

takes seriously the country's peninsular geopolitical character and what cooperation as a fully reliable partner in the ROK-U.S. alliance requires, it may now have to strengthen and improve its ASW capability in general, and in particular, to achieve the best possible underwater situational awareness.

This view is contradicted by a theory now current in China, where submarine development is a subject of debate. One school of thought in the PLA Navy takes the operations of British SSNs during the Falklands War, in 1982, as an model for sea control in distant waters. In this view, the point is the high speed and long endurance of the Royal Navy's SSNs, which made it possible for the United Kingdom, a nonglobal power lacking a large network of overseas naval bases, to gain sea control in a remote and distant operational area—the waters around the Falklands.[14] The attractiveness of this theory to navies like that of China is understandable, but the Chinese rationale raises a further point, a strategic one—the antisurface (that is, tactical) capability of submarines. In the Falklands War a British nuclear-powered submarine, HMS *Conqueror,* attacked and sank a World War II–vintage Argentine cruiser, *General Belgrano.* The Argentine navy's surface operations ceased totally, and eventually Argentine maritime operations of all kinds against British forces were substantially contained. With this single submarine operation, the Royal Navy had gained sea control around the Falklands. In other words, a tactical action by an SSN—a torpedo attack against a surface ship—gained an unexpected strategic advantage, by establishing regional, but total, sea control.

Many navies—notably the Imperial Japanese Navy, the U.S. Navy, and the Royal Navy itself—have made every effort, over the entire course of other wars, to achieve such a capability, regardless of casualties or damage to themselves, and yet have failed. Gaining such a strategic advantage is the very raison d'être of an armed force, the goal of its nation and people in wartime, the pride of its servicemen and women. Nonetheless, many navies have looked for a key to the true significance of submarines in the single success of HMS *Conqueror* in the Falklands.

If the ROKN planners dare instead to seek the strategic significance of conventional submarines in the sea surrounding the Korean Peninsula, taking full account of the limitations of diesel-electric-driven boats, they will have established a good basis for future naval operations and strategy. There are indications suggesting that some answers may become clearer in the near future.

Wide-Area Ocean Surveillance

The ROKN has been continuously modernizing its fleet, but its wide-area ocean-surveillance capability—which is indispensable to both coastal defense and blue-water operations—does not look sufficient at present. If the navy is to achieve these two main missions, it will be necessary to collect and plot precise

surface and subsurface information and intelligence. It is fundamentally important that the ROKN be able to collect information on the three maritime environments, with strikingly different characteristics, that surround it. The ROKN has built robust and capable submarine and destroyer forces, which constitute between them the core of the practical combat power of the fleet—in figurative language, its "spear." However, the navy has yet to improve the wide-area ocean surveillance that it must develop in order to point and thrust this spear. It has already been announced that the ROKN plans to double the number of its P-3Cs, to sixteen, in the near future. However, two questions remain: What is the plan for a wide-area ocean-surveillance capability that meets the real operational and strategic requirements of the Korean nation and its navy? And what is the target date for its completion?

MCM Capability

Some people might consider the mine-warfare resources of the ROKN modest. But in a contingency on the Korean Peninsula, mine warfare, especially mine countermeasures, would be pivotal for the coastal defense of both the east and west coasts of the country. In addition, it would be crucial to secure SLOCs in the Tsushima Strait, which connect the southern part of the ROK with Kyushu, the closest of the four main islands of Japan to the Korean Peninsula, where most logistic supplies for military operations on the peninsula would be collected, stored, and transshipped. So, safe navigation of the Tsushima Strait is indispensable to the ability of both ROK and American forces to fight and sustain themselves, and to the U.S. alliances with both South Korea and Japan. The ROK fleet should be prepared to clear all possible mine threats in at least the strait's western channel; perhaps the JMSDF would clear the eastern channel.

In reality however, there is no agreement between the governments of Japan and the ROK to conduct combined military operations in case of any contingency in either of the two nations. It is true that the lack of a combined operational plan among the Japanese and ROK militaries has been one of most serious problems for regional security, especially in a contingency on the Korean Peninsula. Of course, it is not a purely military matter; a political decision by the two governments is needed to resolve this problem. However, apart from political issues between two governments, the Tsushima Strait will become a SLOC of strategic importance in case of a real-world contingency on the peninsula. In that case, under the sound bilateral policies that are expected to be established shortly, it is natural to presume that the JMSDF would take responsibility in the strait's eastern channel—that is, the Japanese side, between the islands Tsushima and Kyushu. Similarly, the ROKN would take the western channel—the Korean side, between Tsushima and the peninsula—as

its area of responsibility. In this light, the present strength of the South Korean MCM force seems questionable.[15]

A new question therefore arises: How will the navy achieve a balance between its "spear" (its destroyers and submarines) and its MCM force? The answer to this question is not apparent now, but construction in the MCM force in the near future may show the strategic direction of the ROKN in this regard.

The Strategic Mobile Fleet/Strategic Mobile Group

In 2001, the administration of then-president Kim Dae-Jung announced a plan for building a "Strategic Mobile Fleet" in order to achieve "the protection of the national interests in the five oceans in the world and the contribution to the world peace."[16] Later the plan was downscaled from a "fleet" to a "group," of flotilla size. The first SMG is scheduled to be completed by 2010; according to the plan, it will be composed of the LPD *Dokdo,* some KDX-IIIs (Aegis DDGs), and six KDX-IIs.[17]

Additionally, a new naval base for this group is under construction on Cheju Island off the southern coast. The navy has announced that the mission of the SMG will be to gain sea control in the waters surrounding the Korean Peninsula.[18] The combination of amphibious assault ships, destroyers, and guided-missile destroyers—a mix of "L-ships" and "D-ships"—with their different operational requirements and characteristics, seems a little irregular for a group intended to establish sea control. In fact, the declared employment concept for this SMG—which resembles a small U.S. amphibious ready group with escorting destroyers—is a bit ambiguous. The question may naturally arise: What is the real objective of SMG? Is it amphibious warfare (that is, power projection) or sea control, or both?

This argument aside, however, the noteworthy point is that this SMG will be the first major tactical unit in the ROK fleet to focus on operations far from home waters. The final number of SMGs to be organized is a point worth watching.

TWO POWERS DESTINED TO COOPERATE

The ROKN grew steadily at first, then rapidly in recent years, overcoming various difficulties and limitations. The navy has set as its first mission the protection of coastal areas, in light of the more than half-century of confrontation between South and North on the peninsula and also of its geopolitical relationships with the capable navies of nearby nations. The ROKN has endeavored to build up this capability, aware of its heavy responsibility to its country and the South Korean people.

Simultaneously, as the economic development has deepened the country's interdependence with foreign nations, the ROKN, like the nation itself, became acutely aware of the necessity to secure its national interests abroad. The importance to those interests of the security of the nation's SLOCs was fully recognized as well. Around the year 2000 the ROKN started to turn itself into a navy capable of operations far from home waters. Since then, the navy has aimed to meet the needs of both missions, coastal and distant, in its force planning, and as a result the ROKN has become one of the most notable navies in the region today. There seem to be many areas that could be improved and shortcomings to be resolved in the ROKN; no navy in the world is free from such problems.

Nonetheless—and fully recognizing the challenges and issues that exist—there are many areas in which the capable Japan Maritime Self-Defense Force and the emerging Republic of Korea Navy can cooperate in the future. With regard to the strategic viewpoints of the two navies, the most important factor for both the JMSDF and ROKN to understand is that a contingency on the Korean Peninsula could affect Japan and that a contingency in Japan could affect South Korea. The United States, having independent alliances with each country, will respond to any contingency involving either state. In such a case, it will expect the JMSDF and ROKN to cooperate and coordinate between themselves, fully respecting the present situation, current capabilities, and existing limitations and constraints of both navies. Conversely, inadequate cooperation will not only help the adversary in a specific contingency but also serve a third party in the region. In the worst case it would greatly damage the national interests of both nations, as well as those of the United States.

Without question, the more the ROKN develops as a blue-water navy, the more conscious it will become of the Japanese archipelago, ranging from the southernmost Yonaguni Island, immediately east of Taiwan, to Hokkaido and the northern territorial islands of Japan. If so, the geography and geopolitics of the region would make it natural for the South Korean navy to strengthen its relationship with the JMSDF. The converse is true for the JMSDF as well. The two nations, both formidable, regional maritime powers, are destined to cooperate, in the interest of their common values.

I have undertaken the analysis and evaluation of the development of the Republic of Korea Navy as a maritime defense expert and ex-JMSDF leader who was involved in the start of official exchanges between the two services. I have not hesitated to refer to the past, because the ancient history of the Korean Peninsula and the foundational era after World War II form collectively a strong basis for pride in the mind of South Korea's sailors, judging by my own experience with them. If we are to have a correct view of the ROKN, we must take into proper account not only visible equipment of the navy but the "invisible minds"

of its sailors. For that reason, the promotion of mutual understanding should be actively pursued by sailors of both the Japan Maritime Self-Defense Force and the Republic of Korea Navy, from the lowest to the highest levels. The mutual understanding they achieve will be the key to the lasting security of the region.

NOTES

This article represents the personal opinion of the author and not any official position of the JMSDF or the government of Japan. The author expresses special appreciation to Mr. John Niemeyer, a special adviser to the Commander, U.S. Naval Forces Japan (CNFJ), and Ms. Amiko Imaizumi, a civil-affairs liaison and language specialist in the CNFJ Japan Liaison Office, for substantial contributions to the development of the English text of this article. Japanese names are given in Western fashion, surname last; Korean names are given with surnames first.

1. Kim Yan-gi, *Monogatari-Kankoku-shi* [Korean History] (Tokyo: Chuokoron-Shinsha, 1989), pp. 123–24, 156.
2. "KDX" means "next-generation destroyer, designed and built in South Korea." The KDX-1 class is the first generation of this group.
3. Kim, *Korean History,* pp. 241–45.
4. Ibid., pp. 247–48.
5. Ibid., pp. 266–73.
6. At the third session of navy-to-navy talks, held at MSO in January 2002, I (by then a rear admiral and director of Operations and Plans Department of MSO) was impressed by the high morale and strong pride exhibited by the ROKN representatives. They told me of this episode, which suggested the spiritual superiority of South Korean sailors in comparison to the members of the nation's other services.
7. Republic of Korea Navy (English-language), www.navy.mil.kr/english/main/main.jsp [hereafter ROKN website].
8. Gyrodyne Helicopter Historical Foundation, www.gyrodynehelicopters.com. The U.S. FRAM program was meant to extend, by five to eight years, the service lives of its World War II–era destroyers, which were still in the fleet inventory in large number in the 1950s and '60s. The program was also intended to upgrade the ASW capability of many *Gearing*- and *Sumner*-class destroyers in order to cope with the rapidly growing Soviet submarine threat. Major new ASW systems installed on these DDs were the SQS-23 sonar, ASROC (antisubmarine rocket), DASH (the drone antisubmarine helicopter), and Mk-44 torpedo. It also replaced the electronic equipment of these ships with new radars and electronic warfare systems and thoroughly overhauled their propulsion plants.
9. ROKN website.
10. Ibid.
11. Ibid.
12. For example, the force strength of the JMSDF since 2000 has been about fifty DDs, sixteen SSs, twenty-five MCM ships, eighty P-3Cs, and eighty SH-60s. Of fast small craft for coastal operation, there are only six PGs. The JMSDF, which traditionally has laid relatively light stress on coastal defense, has been allocating most of its national resources instead to blue-water forces, especially ASW forces, which the JMSDF thinks indispensable for its SLOC defense and cooperation with U.S. carrier strike groups. In contrast, the strength of the ROKN in the early 2010s seems likely to remain at about twelve DDs, eighteen SSs, ten MCM ships, between eight and sixteen P-3Cs, twenty-five Lynx helicopters, and eighty to a hundred fast small craft of various types. This difference clearly points to the extremely heavy responsibility of the ROKN for its nation's coastal defense.
13. In the fall of 1994, before the start of official exchanges like the navy-to-navy talks, the author (then a captain, deputy of the Plans and Policy Division of MSO) escorted then–vice admiral Ahn on a tour of the JMSDF's Kure

District and the Etajima education and training complex. Vice Admiral Ahn, the commander in chief of the ROK fleet, was visiting unofficially, but I was a bit tense and nervous—it was a rare visit by a South Korean VIP, and I had to escort him alone. I was surprised to learn that Vice Admiral Ahn was quite familiar with the Imperial Navy and the JMSDF. Also, during the three-day trip his frank and honest personality gradually removed my tension. Shown around the headquarters and base facilities, including those of submarines, the Kure District, and Etajima (where the historic brick building of the Imperial Naval Academy still stood), the admiral was impressed by the legacy, both physical and intellectual, of the Imperial Navy to the JMSDF. During the return "bullet train" trip, he quietly but emphatically told me of his determination that the ROKN would build a submarine force and become a blue-water navy in the future, and of the necessity that it do so. By chance, this was just prior to his change-of-command speech. This encounter is one of the reasons why I, as a captain responsible for JMSDF policy, started developing the idea of staff talks between the JMSDF and ROKN, which began three years later.

14. Andrew S. Erickson and Lyle J. Goldstein, "China's Future Nuclear Submarine Force: Insights from Chinese Writings," *Naval War College Review* 60, no. 1 (Winter 2007), pp. 55–79.
15. The practical strengths of the MCM forces of the two navies are in strong contrast. The JMSDF has two MLs/tenders, three ocean minehunters and minesweepers with deep-water MCM capability, and twenty-one coastal minehunters and minesweepers, as well as a squadron of MCM helicopters. For its part, the ROKN has one ML, three MSCs and MHCs, and six MHCs. This difference may generate serious strategic problems in securing the two channels of the Tsushima Strait in case of a peninsular contingency.
16. Global Security, www.globalsecurity.org/military/world/rok/navy.htm.
17. ROKN website.
18. Ibid.

ARCTIC SECURITY CONSIDERATIONS AND THE U.S. NAVY'S ROADMAP FOR THE ARCTIC

Rear Admiral David W. Titley, U.S. Navy, and Courtney C. St. John

Arctic sea-ice melting associated with global climate change has caused leaders from the United States and the international community to reconsider the national security implications of the region. Taking into account nearly a century of experience in the Arctic, new national policy, existing strategy, and geopolitical implications of the changing environment, the U.S. Navy has developed an Arctic Roadmap that will guide policy, investment, and action regarding the region. With key themes of improved environmental understanding, informed investments, increased experience, cooperative partnerships, and support for the UN Convention on the Law of the Sea, the Arctic Roadmap is meant to ensure Navy readiness and capability and result in recognition of the Navy as a valued partner by the joint, interagency, and international communities.

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THE CHANGING ARCTIC ENVIRONMENT

The Arctic has long been a dynamic and harsh environment where maritime operations of any kind have been hazardous, if not impossible. Yet traditional views of the Arctic as a nonnavigable region are beginning to shift. Relative to the 1970s, the Earth's temperature has increased sufficiently to cause significant melting of glaciers and diminishment in Arctic sea ice. The prevailing and well established scientific view attributes this temperature change to anthropogenic emissions of "greenhouse" gases.[1]

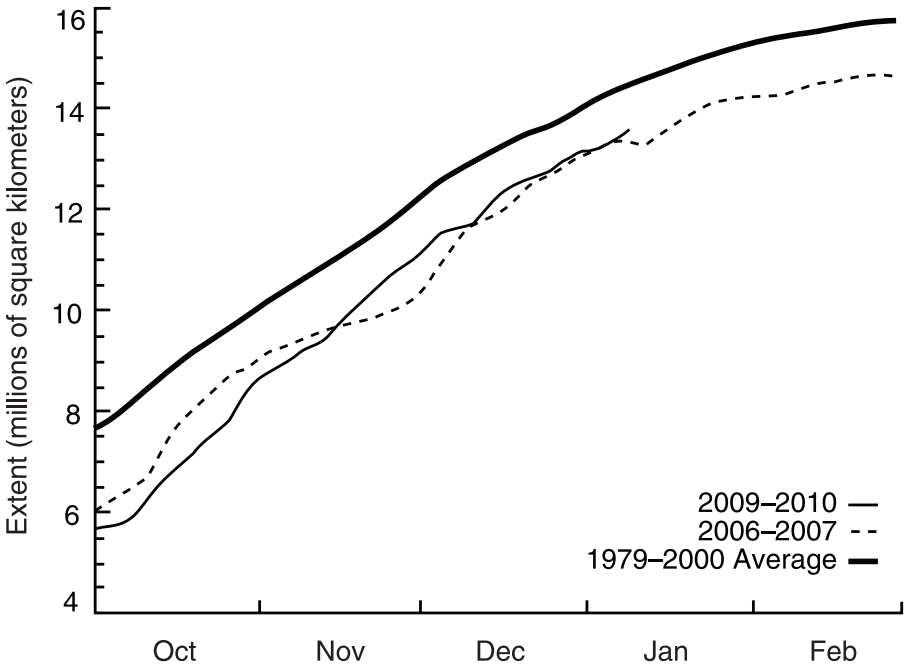
The "greenhouse effect" is the well-known process that keeps the Earth's temperature above the -18°C temperature it would have if greenhouse gases in the atmosphere did not absorb the sun's heat and reradiate it back to the surface. However, the anthropogenic loading of additional greenhouse gases into the atmosphere since the Industrial Revolution has been massive, accelerating the natural climate change processes.[2] Since the 1880s, temperatures have risen 0.8°C—a significant increase in a relatively short period.[3] Greenhouse gases trap more heat in the atmosphere, thereby increasing the average global temperature of the surface and atmosphere.[4] The Arctic is especially vulnerable to global warming, because as snow and ice melt, darker land and ocean surfaces absorb more solar energy. As warming reduces the extent of sea ice, the solar heat absorbed by the oceans in the summer is more easily transferred to the atmosphere in the winter, which makes the air temperature warmer.[5]

As a result, the Arctic is warming twice as fast as the rest of the globe. Specifically, scientists are observing retreating sea ice, melting glaciers, and shrinking snow and permafrost areas.[6] The summer ice cap is estimated to be only half the size it was fifty years ago.[7] Sea-ice extent in the Arctic has decreased steadily since the 1950s and in September 2007 reached a record low that was 39 percent below the 1979–2000 mean. September 2008 experienced the second-lowest Arctic ice extent on record, at 34 percent below the 1970–2000 mean. In September 2009, when the Arctic reached its minimum ice extent for the year, it was recorded at the third-lowest extent since 1979 satellite measurements began, further demonstrating the declining trend in summer sea ice over the past thirty years (see the figure).[8]

Although estimates for when the Arctic will experience ice-free conditions in the summer range from 2013 to 2060, the consensus of most models and researchers is that the Arctic will experience ice-free conditions for a portion of the summer by 2030.[9] It is important to point out that no research or model simulations indicate that winter sea-ice cover of the Arctic Ocean will disappear during this century. This reinforces the point that the Arctic will still be a very challenging environment in which to operate.

Regardless of the exact year that the Arctic becomes ice free in the summer, the widespread warming trend will continue. Multiyear sea ice has also declined rapidly in the central Arctic Ocean; one study based on satellite data for winters during 1978–98 showed that multiyear sea ice declined at a rate of 7 percent per decade.[10] A second study examined twenty-five years of summer ice minima (from 1978 to 2003) and demonstrated a decline of multiyear sea ice as high as 9.2 percent per decade.[11] The multiyear ice is being replaced by first-year sea ice that is considerably weaker and thinner. Because ice cover naturally cools air and

DAILY ARCTIC SEA ICE EXTENT AS OF 9 JANUARY 2010



Source: National Snow and Ice Data Center
Note: Area of ocean with at least 15 percent sea ice.

water masses and plays a significant role in ocean circulation and the reflection of solar radiation back into space, weaker and thinner sea ice has the potential to change the global climate system significantly.[12] The well observed decline in multiyear and summer sea ice is a clear indicator that some of the most rapid climate change on Earth is occurring in the Arctic.[13]

The effects of climate change in the Arctic are observed in the sea, in the air, and on land. Indigenous Arctic people are facing relocation and loss of communities as sea-ice melt causes increased shoreline erosion and melting of permafrost. Impacts on Arctic species include the well publicized decline of the polar bear population and a decline in the algae that attach to the bottom of the ice. The algae form the base of the food chain linking microscopic animals and fish to other animals.[14] In other cases, flora and fauna are experiencing extended growing seasons, and the Arctic is playing host to new species migrating northward with shifting climate patterns; changes in fish migrations coupled with intensified sea-ice melt will yield greater access to fish stocks. These trends clearly demonstrate the need to understand the complex processes occurring in the Arctic.[15]

However, changes in sea ice, sea-level rise, and ocean acidity and their impacts on ecosystems are not well modeled. Most numerical modeling to date has

focused on global change predictions, which have greater confidence than regional change predictions, where weather patterns and ecosystem impacts vary considerably.[16] Present climate projections based on the Intergovernmental Panel on Climate Change Assessment Report (2007) show substantial uncertainty in regional and decadal scales, especially with respect to ice-sheet dynamics and sea-level rise. Data-gathering methods used for climate data are typically designed for other purposes (like agricultural services, weather prediction, or water-resources management) and therefore do not accurately reflect the intricacies needed to detect gradual climate trends.[17] Because the Arctic is such a hostile environment, in situ observations are challenging, if not impossible, in many locations. If it is to understand near- and long-term trends better, the international Arctic science community will need to deploy its resources in the most effective manner.

Natural Resources

One future change in the Arctic region is greater accessibility to, and availability of, natural resources, including offshore oil and gas, minerals, and fisheries. The Arctic contains 10 percent of the world's known petroleum reserves and approximately 25 percent of its undiscovered reserves.[18] The U.S. exclusive economic zone has a potential thirty billion barrels of oil reserves and 221 billion cubic feet in natural gas reserves.[19] Minerals available for extraction in the Arctic include manganese, copper, cobalt, zinc, and gold. Coupled with a rise in global demand for natural oil and gas resources and improved accessibility, the Arctic has become a new focus for oil companies looking for untapped resources. Already $2.6 billion has been spent on active oil and gas leases in the Chukchi Sea.[20] Yet the extraction of these minerals and petroleum reserves depends heavily upon development and deployment of resilient technology that can function in such harsh conditions, marked by lack of infrastructure and long distances to markets.

The warming experienced recently in the Arctic region may improve the availability of certain resources, but it will redistribute others. In the United States alone, redistribution of fish stocks will cause changes for indigenous Alaskans who depend upon the stocks for subsistence. In August 2009 the National Oceanic and Atmospheric Administration (NOAA) released a fishery management plan for the Arctic waters of the United States, including the Chukchi and Beaufort seas, which prohibits commercial fishing in the region until enough information is available to manage the fishery sustainably.[21] Fisheries managers require an understanding of how to maintain sustainable fisheries while taking into account likely intensification in commercial fishing operations. Resource

planners and policy makers will need to examine closely the best ways to manage newly opened areas of the Arctic, balancing multiple and competing uses.

Transportation Access and Operational Challenges

As for natural-resource availability, shipping and transportation will benefit from a more open Arctic. The fabled Northwest Passage and Northern Sea Route will both be navigable for greater periods of time during the summer, and may be utilized more often for commercial shipping. Indeed, the Northern Sea Route offers a 35–60 percent savings in distance—and therefore in time and money — for shipping between Northern Europe and the Far East in comparison to the Suez or Panama canals, making it a very attractive option.[22] Surface-vessel access to "open water" areas within the Arctic will gradually increase from the current few weeks a year to a few months a year, centered around mid-September (the minimum ice extent), although better access will be tempered by the challenges that operation in the Arctic environment poses for the shipping industry.[23] For example, marine insurers are currently offering insurance only on a case-by-case basis, and marine operations are impeded by lack of ice-navigator training programs, most of which are ad hoc in any case.[24] Sea-ice forecasts are limited by a lack of understanding of the exact interrelationships among ice, polar oceans, and the atmosphere, and inability to model variables like sea ice at a fully coupled, regional scale, taking account of complexities that arise from the interactions of global, regional, and local processes.[25] National standards that regulate ship-source pollution vary among Arctic states; shipping companies will also need to invest substantial amounts of money to develop new ice-strengthened vessels and ensure that they operate within environmental compliance guidelines.

Boundary Disputes, Security Concerns

Despite present good relations among Arctic nations, recent media attention paints the area as a source of potential international conflict as countries flex their muscles and seek to identify portions of the region to which they can lay claim. After a team of scientists planted a Russian flag on the seabed of the North Pole, a well publicized article in *Time* magazine in October 2007 posed the question, "Who owns the Arctic?" Over the past few years, in the wake of Russia's actions, the recent years of decreased summer ice extent, and a swell of scientific reports published on climate change, the Arctic has experienced a rise in media attention. Media speculation has spoken of the Arctic as the site of a new Cold War, suggesting that the question of who "owns" the Arctic will cause international conflict. In reality, the "new" Arctic will be one with multiple competing uses by many countries. Indeed, the likelihood of large-scale international

conflict is small, and the Arctic environment will continue to be harsh and challenging for much of the year, making operations difficult and dangerous for the remainder of the twenty-first century.

The legal regime applicable in the Arctic is the customary international law as reflected in the United Nations Convention on the Law of the Sea (UNCLOS). While the United States has not ratified UNCLOS, it considers the convention's navigation and jurisdiction provisions to be binding international law. The convention advances and protects the national security, environmental, and economic interests of all nations, including the United States, codifying the navigational rights and freedoms that are critical to American military and commercial vessels. It also secures economic rights to offshore natural resources.[26] Article 76 of the convention allows nations to claim jurisdiction past their exclusive economic zones on the basis of undersea features that are considered extensions of the continental shelf, if a structure is geologically similar to a nation's continental landmass.[27] In May 2008 five of the Arctic nations adopted the Illulissat Declaration, which acknowledges that "the Law of the Sea is the relevant legal framework in the Arctic" and that there is "no need to develop a new comprehensive international legal regime to govern the Arctic," committing the signatories to an "orderly settlement of any possible overlapping claims."[28]

Currently there are overlapping, unresolved maritime boundary claims between the United States and Canada, Canada and Denmark, Denmark and Norway, and Norway and Russia. At this time, none of these disputed boundary claims pose a threat to global stability. While the United States and Canada disagree on the location of the maritime boundary in and northward of the Beaufort Sea, the United States considers Canada a close ally, and the dispute does not jeopardize this relationship.[29] Unfortunately, the United States is the only Arctic nation that has not joined UNCLOS, despite support from President Barack Obama and the Bush and Clinton administrations. Because the Illulissat Declaration recognizes the law of the sea as the framework for deciding issues of Arctic territoriality, the United States will likely find itself at a disadvantage when critical Arctic conversations occur.[30]

The U.S. Navy is mindful of other international challenges and opportunities in the Arctic. There is some concern in Japan that a renewed Arctic emphasis by the U.S. Navy may lead to a corresponding decrease in western Pacific presence and security. Conversely, there are unique opportunities for the U.S. Navy to develop "soft" partnerships with other nations, such as Russia and China, on research like hydrographic surveys. While present boundary disputes and security concerns pose no major risk to international stability and security, the long-term potential for significant change in the Arctic must be recognized and thoroughly assessed.

THE U.S. NAVY'S ROLE IN A CHANGING ARCTIC

The Navy understands the wide range of security considerations in the Arctic region and that the effects of climate change in the Arctic will influence the geostrategic landscape. Future maritime activity in the region will encompass many non-Arctic stakeholders; the potential exists for the overlap of new operations with indigenous uses and for the occurrence of multiple uses in Arctic waters.[31] The Navy must carefully assess the effects of more severe weather and the rise of sea level on existing installations, while concurrently determining future installation needs. Security, stability, and safety have been, and continue to be, the objectives of the Navy's Arctic activities, despite a potential shift in the type, scope, and location of future missions in the region.

The U.S. Navy has been operating in the Arctic for nearly a century, beginning with Admiral Richard E. Byrd's historic flight over the North Pole in 1926. The Navy sustained its presence in the Arctic during and immediately after World War II, a presence that peaked in 1958, when the USS *Nautilus* (SSN 571) performed the first submerged transit of the North Pole. Navy submarines have remained active in the region ever since and continue to use the area for research and training. Surface assets routinely operate in subarctic conditions. In the 1990s a program known as Science Ice Expedition (SCICEX) used *Sturgeon*-class (SSN 637) nuclear-powered attack submarines to conduct collaborative scientific cruises carrying civilian specialists to the Arctic basin. Six SCICEX missions took place from 1993 to 2000. The missions allowed scientists to gather data on the biological and physical properties of the northern waters and placed emphasis on understanding the dynamics of sea-ice cover, circulation patterns in the water, and the structure of the Arctic Ocean's bathymetry.[32]

Navy surface, aviation, and special warfare forces have participated in joint and combined exercises, such as NORTHERN EDGE, and will continue to do so. Navy surface vessels are able to operate up to the marginal ice zone but will require ice-strengthening to operate in higher ice conditions; Navy aircraft are capable of operating in the Arctic, but the lack of divert fields limits their duration and range. The Navy's Arctic Submarine Laboratory leads the ICEX series, Arctic research-and-development missions whose activities include temporary Arctic ice camps on the edge of the perennial ice.[33] The most recent camp was established in the spring of 2009 on a piece of Arctic pack ice approximately two hundred nautical miles north of Prudhoe Bay, Alaska; it supported about sixty personnel.[34] Great Britain's Royal Navy shares the use of these camps, and cooperative operations involve both U.S. and British submarines. After military operations are concluded, ice camps have on occasion been turned over to civilian researchers, allowing them to take advantage of facilities that would otherwise be beyond their budgets.

While the Navy has a rich history in the Arctic, several challenges must be met to ensure successful operations in the future. These include the lack of support infrastructure and logistics support, environmental hazards such as drifting sea ice and icing on exposed surfaces, and communications difficulties. Antiquated nautical charts, drifting ice, low visibility, and the paucity of electronic and visual navigation aids hinder safety of navigation. A lack of coastal installations also contributes to the difficulty of search and rescue (SAR) operations. The only American-owned deepwater port near the Arctic basin is Dutch Harbor, in the Aleutian Islands.[35]

The Navy and other federal government agencies are taking steps to address some of these challenges. The U.S. State Department recently hosted a conference of representatives from the Arctic Council nations to begin development of a memorandum of understanding for SAR in the Arctic. Senators Mark Begich and Lisa Murkowski of Alaska have recently supported bills that would study the feasibility of a deepwater port in the Arctic. Also, of course, the U.S. Navy has developed a roadmap to ensure its own readiness and capability in the region.

THE U.S. NAVY'S ARCTIC ROADMAP

Despite uncertainty in scientific projections and operational challenges, the time line for change in the Arctic points to a challenge, not a crisis. The Navy's role in the Arctic is to foster and sustain cooperative relationships with other Arctic nations and, within the joint, interagency, international, and academic communities, to improve its understanding of the Arctic environment, enhance its ability to predict changes to it, and prevent or contain any regional instability, through the creation and maintenance of security at sea.

Drivers

In October 2007 the Navy, Coast Guard, and Marine Corps released "A Cooperative Strategy for 21st Century Seapower"—commonly referred to as the "Maritime Strategy"—which states: "Climate change is gradually opening up the waters of the Arctic, not only to new resource development, but also to new shipping routes that may reshape the global transport system. While these opportunities offer potential for growth, they are potential sources of competition and conflict for access and natural resources." The Maritime Strategy clearly identifies freedom of navigation as a top national priority. Preserving the rights of navigation and overflight in the Arctic region supports the Navy's ability to exercise these rights throughout the world, including transit rights in strategic straits.

The Maritime Strategy applies fully in the Arctic as it does in other regions of the globe; it sufficiently addresses the opening Arctic and the potential

challenges and opportunities that phenomenon represents. The core capabilities of the Maritime Strategy that are most applicable to the Arctic are forward presence, deterrence, maritime security, and humanitarian assistance/disaster relief (HA/DR), through the formation and sustainment of cooperative relationships with international partners. As in every other region, the naval services must be prepared to prevent or limit regional conflict when required.

In January 2009, President George W. Bush signed National Security Presidential Directive-66/Homeland Security Presidential Directive-25 (NSPD-66/HSPD-25), which established Arctic-region policy priorities for the nation. The policy declares that the "United States is an Arctic nation, with varied and compelling interests in that region."[36] The directive takes into account altered policies on homeland security and defense, the effects of climate change and increasing human activity in the Arctic, the work of the Arctic Council, and the increasing awareness that the Arctic region is fragile yet rich in resources.[37] The Arctic Region Policy directs the departments of State, Homeland Security, and Defense to develop greater capabilities and capacity as necessary to protect U.S. borders; increase Arctic maritime domain awareness (MDA); preserve global mobility; project a sovereign American maritime presence; encourage peaceful resolution of disputes; cooperate with other Arctic nations to address likely issues arising from greater shipping activity; establish a risk-based capability to address hazards in the region, including cooperative SAR, basing, and logistical support; and evaluate the feasibility for using the Arctic for strategic sealift. These requirements do not promulgate new Navy missions but imply that the service must be prepared to increase Arctic engagement.

In May 2009 the Chief of Naval Operations (CNO), Admiral Gary Roughead, convened a CNO Executive Board to answer questions about the Arctic centering on the changing environment, past and present Navy activity in the Arctic region, future Navy investments, security requirements, fleet capabilities and limitations, and activities of other Arctic nations. The result was the establishment of the Navy's Task Force Climate Change (TFCC) to address Navy implications of climate change, with a near-term focus on the Arctic.

TFCC is directed by the lead coauthor of this article—the Oceanographer of the Navy, Rear Admiral David Titley—and is composed of representatives from offices within the CNO's staff, the fleet, NOAA, and the U.S. Coast Guard. TFCC also includes representatives from the Joint Chiefs of Staff and various interagency, international, scientific, and academic organizations, acting in advisory capacities; the task force consists of a flag-level steering committee, a Navy Climate Change Coordination Office, and several action-oriented working groups. TFCC was initially tasked to develop a document to guide Navy policy, investment, and public discussion regarding the Arctic.

The Vice Chief of Naval Operations approved the resulting Arctic Roadmap in November 2009. The document is synchronized with a science-based time line, provides a framework for Navy discussion of the Arctic, and lists appropriate objectives and actions, tempered by fiscal realities.[38] The need for a science-based time line is clear: if the Navy acts too early it will waste resources, but acting too late will result in mission failure. Understanding the complex changes occurring in the Arctic region requires sound scientific information, upon which policy, strategy, and operations are based. Greater understanding leads to sound decision making that utilizes assets in the safest and most efficient manner.

The roadmap features a five-year action plan that implements both the national Arctic Region Policy and the Navy's Maritime Strategy and lays out initiatives, such as science and technology and combined exercises, to carry out its goals. The roadmap seeks to answer several questions:

- What is the time line for naval Arctic access?
- What is the national security threat?
- Will the Navy be required to increase engagement in the Arctic?
- In what does the Navy need to invest to meet expected Arctic requirements?

Objectives

The main objectives of the Arctic Roadmap are readiness, capability, and security. Specifically, the U.S. Navy seeks to gain improved understanding regarding the current and predicted environment, gain greater experience through established exercises, and make informed investments that will provide the right capability at the right time. The roadmap recognizes that key to its success is cooperative partnerships with interagency and international stakeholders that will improve the Navy's capability to assess and predict climate changes in the Arctic. To achieve these objectives, the roadmap focuses on five areas: Strategy, Policy, Missions, and Plans; Operations and Training; Investments; Communications and Outreach; and Environmental Assessment and Prediction.

Strategy, Policy, Missions, and Plans. Actions in this focus area include the identification of Navy strategic objectives in the Arctic region and the development of guidance to achieve these objectives so as to preserve a safe, stable, and secure Arctic region. Policy and recommendations to operational staffs will be developed to strengthen existing and foster new cooperative relationships.

Operations and Training. Actions in this focus area were identified by U.S. Fleet Forces Command and the geographic combatant command staffs with the

intent of providing a Navy enterprise–wide approach for action regarding the Arctic. Participation in Arctic exercises, operations, and supporting activities is identified, with the intent of increasing Navy experience in the region.

Investments. This focus area seeks to ensure that Arctic requirements are assessed and included in the development of the Program Objective Memorandum or Navy budget. Investment areas that are addressed include weapons platforms and sensors; C4ISR (command, control, communications, computers, intelligence, surveillance, and reconnaissance); and installations and facilities.

Communications and Outreach. This focus area addresses the facts that the Navy can benefit from exchanging information with the wide array of Arctic stakeholders and that media attention will grow as the Arctic endures further rapid and severe change. Targeting organizations within the media, government, Department of Defense, international, scientific, academic, and indigenous communities, actions in this focus area are intended to ensure that the Navy is recognized as contributing to a safe, secure, and stable Arctic region.

Environmental Assessment and Prediction. Actions in this focus area will foster a comprehensive and improved understanding of the current and predicted Arctic physical environment on the tactical, operational, and strategic scales. Because of limited resources and the potential for significant requirements, reducing uncertainty in predictions of the magnitude, timing, and regional location of Arctic environmental change is essential to efficient and responsible Navy action and investment.

Phasing

The roadmap specifies Navy action over three phases, allowing necessary background studies and assessments to be completed, partnerships formed, and knowledge cultivated. TFCC will be responsible for execution of the roadmap and will provide quarterly progress reports to the Chief of Naval Operations.

Phase 1—Fiscal Year (FY) 2010. The first phase of the Arctic Roadmap will include a Fleet Readiness Assessment and an assessment of strategic objectives and mission requirements in the Arctic region. External studies regarding Arctic security will be reviewed, and an Arctic strategic implementation plan for the Maritime Strategy will be completed. The Navy will continue working with NOAA to develop a next-generation, coupled, air-ocean-ice modeling system to predict accurately Arctic environmental change; the Navy will also perform a joint hydrographic survey in the Bering Strait with NOAA. The Navy participated in an Arctic tabletop exercise in November 2009 with the Office of the Secretary of Defense and plans to participate in a "Limited Objective experiment"

with U.S. Northern Command and National Defense University in February 2010.

Phase 2—FYs 2011 and 2012. Significant actions in Phase 2 include initiation of capabilities-based assessments regarding required Navy Arctic capabilities, completion of environmental assessments, and support for implementation of the national ocean policy and coastal and marine spatial planning framework in the Arctic.[39] Recommendations will also be developed to address Arctic requirements in "sponsor program proposals" for the Navy's Program Objective Memorandum for FY 14 (POM 14). Biennial participation in Arctic exercises such as ICEX-11 will continue, and the Navy will formalize new cooperative relationships that increase experience and competence in SAR, MDA, HA/DR in the Arctic, and defense support of civil authorities in Alaska.

Phase 3—FYs 2013 and 2014. During Phase 3, the Navy will oversee execution of POM 14 budget initiatives while implementing and expanding new cooperative partnerships. The Navy will commence Arctic environmental survey operations using unmanned undersea vehicles. In fiscal year 2014 the Arctic Roadmap will be updated in coordination with the 2014 Quadrennial Defense Review, to ensure that the Navy presence in the Arctic is aligned with the strategic objectives of the Department of Defense.

The scope and magnitude of changes to the Arctic region as a result of a changing climate are great, and they cannot all be identified within the scope of this article. Overall, continued sea-ice melting will cause shifts in species populations and distribution, more navigable transportation passages, and increased shipping activity and resource extraction. It also has the potential to modify significantly global circulation patterns around the world, the consequences of which scientists are just beginning to model and comprehend. Each of these changes will shape safety and security in the Arctic.

The Navy's Task Force Climate Change is addressing security considerations in the Arctic by implementing a science-based roadmap for action. Emphasizing the key themes of improved environmental understanding, informed investments, increased experience, cooperative partnerships, and support for the UN Convention on the Law of the Sea, the Arctic Roadmap will ensure the Navy's readiness and capability to operate successfully and safely in the changing Arctic environment in the twenty-first century.

NOTES

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THE U.S. NAVY'S TRANSITION TO JETS

Robert C. Rubel

Definition of an optimist: a naval aviator with a savings account.
QUIP POPULAR IN NAVAL AVIATION

As we approach 2011, the centennial year of aviation in the U.S. Navy, the jet engine and jet-powered aircraft have become ubiquitous. Today millions travel safely in jet airliners, and the military jet fighter is almost a cultural icon. However, in the late 1930s the prospect for powering aircraft with anything but piston engines seemed remote, except to a few visionary engineers in Great Britain and Germany. In the early 1940s their work resulted in the first flights of jet-powered aircraft, but due to the low thrust of their engines these aircraft were outclassed by existing piston-engine fighters. Additional advances in engine design in Germany resulted in the fielding of the Me-262 Swallow fighter, which, although not as maneuverable as the American P-51 Mustang or other Allied fighters, had a top speed 100 mph faster, due to its jet engines and swept wings, giving it significant operational advantages. After the war, aeronautical engineers from all the Allied nations studied German technical advances and worked to incorporate them into their new generations of fighters.

When the U.S. Navy introduced its first operational jet, the McDonnell F1H Phantom, in 1947, it began a transition phase that turned out to be extended and very costly in terms of aircrew lives and airplanes lost. The higher speeds and altitudes of jets presented a new set of problems to the aircraft designers and manufacturers, as well as to the Navy squadrons that operated them. In 1946, nobody knew that a high-performance jet fighter needed such appurtenances as a stabilator (instead of an elevator); irreversible,

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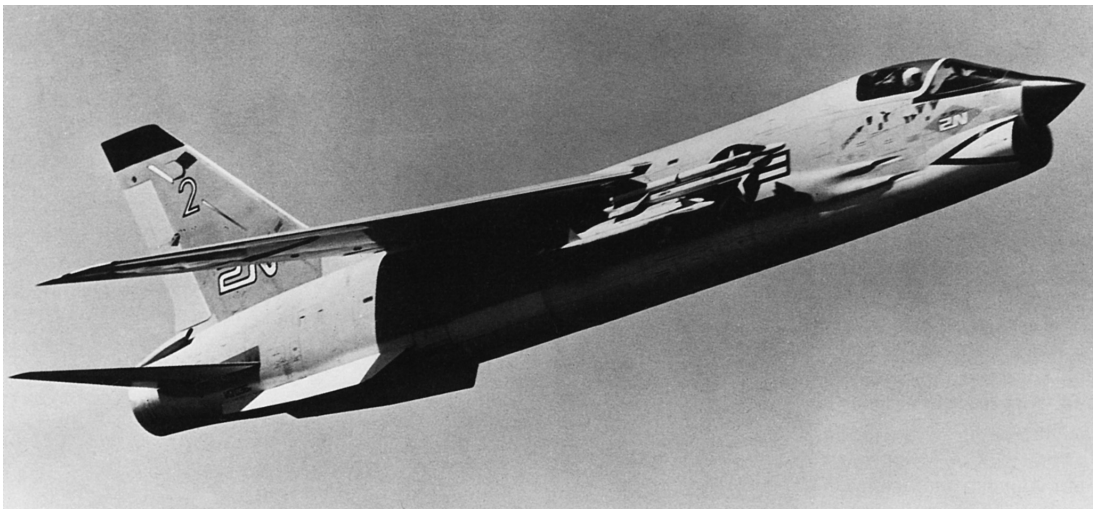


F8U-2N Crusader

U.S. Navy

hydraulic flight controls with artificial feel; redundant hydraulic systems; pitch and yaw stability augmentation; ejection seats; air conditioning; and others.[1] Learning these lessons required a trial-and-error process that resulted in the fielding and rapid obsolescence of a series of different jets, each reflecting solutions to the defects discovered in earlier models.

It is central to the story presented in this article to consider how long this "transition" to jets lasted. Some histories of naval aviation regard the transition to jets to be substantially complete with the phasing out of the last propeller-driven fighter, the F4U Corsair, while others maintain that the transition lasted until the introduction of the F-8 Crusader and F-4 Phantom II—the first Navy carrier-based fighters that were the equals of their land-based counterparts. Another way of looking at it is through the lens of safety: one might declare the transition to have been complete when the Navy aviation accident rate became comparable to that of the U.S. Air Force. The logic behind this reasoning is that whereas a multitude of factors—technical, organizational, and cultural—constitute the capability to operate swept-wing jets, the mishap rate offers an overall indicator of how successful an organization is in adopting a new technology. Using this criterion, the Navy's transition process lasted until the late 1980s—which was, not coincidentally, the era in which the F/A-18 arrived in the fleet in numbers. This article argues that tactical jet aircraft design and technology presented Navy aircrews, maintenance personnel, and leaders with several major challenges that were in fact not substantially overcome until the introduction of the F/A-18 Hornet in 1983. These challenges included such technical problems as engine reliability and response times, swept-wing flight

characteristics, and man/machine interface issues. The Air Force also encountered these challenges, but the Navy's operating environment and, indeed, its organizational culture kept it from achieving a fully successful transition until well after the Air Force did.

Between 1949, the year jets started showing up in the fleet in numbers, and 1988, the year their combined mishap rate finally got down to Air Force levels, the Navy and Marine Corps lost almost twelve thousand airplanes of all types (helicopters, trainers, and patrol planes, in addition to jets) and over 8,500 aircrew, in no small part as a result of these issues. Perhaps the statistics for the F-8 Crusader, a supersonic fighter designed by Vought in the late 1950s, provide a good illustration of the problem. The F-8 was always known as a difficult airplane to master. In all, 1,261 Crusaders were built. By the time it was withdrawn from the fleet, 1,106 had been involved in mishaps. Only a handful of them were lost to enemy fire in Vietnam.[2] While the F-8 statistics might have been worse than those for most other models, they make the magnitude of the problem clear: whether from engine failure, pilot error, weather, or bad luck, the vast majority (88 percent!) of Crusaders ever built ended up as smoking holes in the ground, splashes in the water, or fireballs hurtling across a flight deck. This was naval aviation from 1947 through about 1988. Today, the accident rate is normally one or less per hundred thousand hours of flight time, making mishaps an

F/A-18 Hornet

U.S. Navy

unusual occurrence. This is in stark contrast to the landmark year of 1954, when naval aviation (that is, Navy and Marine combined) lost 776 aircraft and 535 crew, for an accident rate well above fifty per hundred thousand flight hours—and the rate for carrier-based tactical aviation was much higher than that.

During this extended transition period, naval aviation participated in three major wars and numerous crises, and, of course, many planes and crews were lost to enemy fire. However, the vast majority of aircraft losses over this period were due to mishaps, many of which were associated with the technical and organizational problems just mentioned. In other words, the airplanes that populated the flight decks of aircraft carriers from the introduction of the F1H Phantom through the retirement of the F-14 Tomcat were, with few exceptions, hard to fly and maintain and would kill the unwary crew. Many men and a few women gave their lives trying to operate these machines in the challenging environment of the sea. This history is meant to recognize their sacrifice and honor their service.

THE OPERATIONAL IMPERATIVE

U.S. naval aviation ended World War II at the pinnacle of success; its propeller-driven aircraft were the best in the world, and the requirements of carrier suitability did not compromise their performance versus that of land-based fighters. By the early 1940s the Navy's Bureau of Aeronautics had received word of jet engine developments in Germany and Great Britain and had commissioned Westinghouse and Allis Chalmers to build American versions. However, the high fuel consumption, low power at takeoff, and poor reliability of early engines did not make them attractive for use in carrier-borne planes. Moreover, when details of German aerodynamic advances, specifically the swept wing, became known, Navy planners felt that high landing speeds and adverse handling characteristics would make aircraft equipped with them unsuitable for carrier use.

On the other hand, the Navy was faced with a new opponent, the Soviet Union, that had also capitalized on captured German knowledge. If the Soviets were to build a high-speed jet bomber, carriers might be defenseless if they could not launch high-speed interceptors from their decks. As the Cold War came into being, this knowledge pressurized the development of jet aircraft, adding to the rapidity with which it took place but also imposing brutal material and human costs.

An additional source of pressure was the new U.S. Air Force, whose leadership in the postwar environment believed that the combination of the atomic bomb and the ultra-long-range bomber rendered naval aviation irrelevant. The Navy had long regarded strikes against land targets to be a fundamental mission of its

own air arm, and the prospect of being sidelined in the business of nuclear attack seemed to threaten the very existence of naval aviation. In April 1949 the secretary of defense, Louis Johnson, canceled the construction of USS *United States,* a very large aircraft carrier that had been designed to support a new generation of big Navy jet bombers capable of carrying the large and heavy nuclear weapons of the day. This cancellation, along with Air Force efforts to push the huge B-36 bomber program at the expense of the other services, produced in October 1949 an incident that has been termed the "Revolt of the Admirals." Admiral Arthur Radford and other aviation flag officers, as well as the Chief of Naval Operations (CNO), Admiral Louis Denfeld, testified before Congress arguing the need for an atomic delivery capability for naval aviation and alleging the deficiencies of the B-36—in direct contravention of the secretary of defense's wishes. Although Admiral Denfeld was subsequently fired by the secretary, Congress was sufficiently convinced of the Navy's utility in strike warfare to authorize in 1951 the construction of USS *Forrestal,* the first of the "supercarriers" that could adequately handle the heavy, fast jets. However, the Navy still needed a jet to perform the mission of nuclear strike, and development pressures continued.

The early Cold War operational environment was challenging for naval aviation, to say the least. Knowing that the Soviet Union was working on jet fighters and jet bombers that could carry nuclear weapons and drop them on naval formations, the Navy needed to develop fighter/interceptor aircraft that could defend the carrier and its escorts from attack while sailing into position to launch its own strike, and also strike aircraft that had enough range to hit meaningful targets and enough speed to survive enemy defenses. These general requirements propelled naval aviation development efforts from the late 1940s through the 1970s. During this period, the actual employment of naval aviation in two wars—Korea and Vietnam, as well as later in DESERT STORM—demanded of Navy jets the flexibility to conduct conventional bomb delivery, close air support, and dogfighting. Thus carrier jets morphed over time to designs that were more general in purpose, resulting ultimately in the F/A-18 Hornet, an aircraft that is a true strike-fighter.

Thus there was no opportunity for naval aviation to rest on its laurels after World War II. In combination with a massive postwar demobilization, it had to forge ahead with a program to adopt the new engine and aerodynamic technology. It attempted to reduce strategic risk, by letting multiple contracts to different aircraft companies in hopes that at least one of the designs would be viable. On the other hand, it accepted a high degree of operational risk, by ordering series production of various models before flight-testing was complete. The net

effect of this strategy was that between 1945 and 1959 twenty-two Navy fighters made their first flights, whereas over the following forty-six years only five did so.[3] Some of the designs spawned during the early period, such as the F2H Banshee, were useful machines and had lengthy service lives, while others, like the F7U Cutlass and F-11 Tiger, were disappointments and saw only brief service.

As mentioned previously, the first years of the jet era in the Navy were disastrous in terms of aircraft and crews lost, but the Navy had little choice but to continue sending jets to sea. The gas-guzzling nature of jets made getting them back aboard the carrier in a timely manner a matter of utmost urgency and increased the pressure on carrier captains, admirals, and their staffs to adapt to an operational tempo very different from what had been the norm. In 1950, a future vice admiral, Gerald Miller, was on a carrier group staff operating F9F-2 Panthers in Korea. On one occasion the group staff meant to swap sixty-four Panthers from an outgoing carrier to one just coming into the theater. The weather was bad at airfields ashore, and heavy seas were causing the flight decks to pitch. The staff work and planning did not adequately take into account the limited endurance of the new jet-powered aircraft. Miller's description of what happened next illustrates the consequences of learning to operate jets in a wartime environment:

> We had a lot of these fighters in the air. Then we tried to bring them down and it was a tough job of getting them on board. They were running out of fuel and there was no base on the beach to send them to. We had to get them back on board those two carriers, and we broke up those planes in some numbers.

F9F-2 Panther

Courtesy National Naval Aviation Museum

> It was awful. It was so bad, I can still remember the admiral walking over to the opposite side of the bridge, putting his head down on his hands and shaking. It was so bad he couldn't even get mad. It was a horrible mess. Well, that was all because of the size of the ship, the nature of the airplanes and straight deck operations. We started from debacles of that kind to get something better.
>
> Considering the upheaval in the navy caused by demobilization and the introduction of new technologies, it's amazing that we kept together as much as we did. . . . We worried, but we did proceed with the jet program.[4]

At the same time that naval aviators were attempting to master the new jet aircraft, they were also grappling with two new missions that increased the degree of difficulty even more: night or all-weather operations, and nuclear weapons delivery. In a sense, these two missions were connected, in that it was felt that when the call came, weather or darkness must not be allowed to stand in the way of getting the nuclear weapon to its target. These two missions exerted considerable pressure on aircraft design and on the risks naval aviation was willing to endure to put these capabilities to sea. Coupled with the hazards inherent in jet-powered aviation in those years, they significantly contributed to the loss of aircraft. Gerald O'Rourke, USN (Ret.), describes the environment in Composite Squadron Four (VC-4, based at Naval Air Station Atlantic City, New Jersey), the Navy's East Coast night/all-weather fighter squadron in the early 1950s:

> All naval aviators are routinely exposed to, or involved in, aircraft accidents. That's accepted as almost a hazard of the trade. In carrier work, where dangers abound, accidents tend to be more frequent. In the night carrier operations of those days, accidents were so frequent that they were considered commonplace and unexceptional. Whenever a det [detachment of four to six aircraft sent out on a carrier] departed, the aircraft they flew off were more or less written off. No one expected that all of them would ever come back to Atlantic City. . . . Unfortunately, the same negativism tended to extend to the pilots as well, whose safe return wasn't much better than the aircraft. Between pilots lost, the pilots maimed, and the pilots who decided to throw in their wings, precious few dets ever returned with the same resources they took with them.[5]

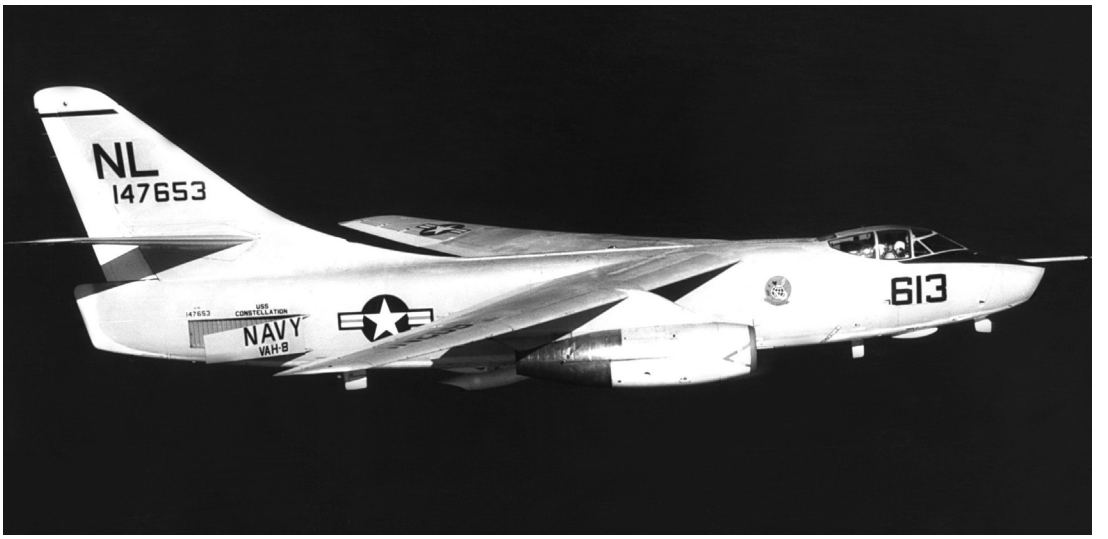
NAVAL AVIATION CULTURE AND THE TRANSITION TO JETS

In order to understand the catastrophic price the Navy paid in its march to operate swept-wing jets from aircraft carriers, we must look at the organizational culture onto which this new technology was grafted. After all, the majority of the mishaps that occurred were due to aircrew errors of some sort, whether precipitated or exacerbated by design problems or the result of gross error, negligence, or irresponsibility not connected with design issues.

Naval aviators always viewed themselves as daredevils. The difficulties of taking off from and landing on ships were unequaled in the land aviation domain, and naval aviators therefore considered themselves exceptionally skilled—and expendable. The accident rate (if not the sheer number of mishaps) in naval aviation from its inception to World War II was hardly less than the awful rates experienced in the early jet era. Naval aviators always regarded themselves as a different breed from their surface-ship brethren, but for all that they shared, and still do, the Navy's culture of independence and self-reliance. The simplicity and relative inexpensiveness of early naval aircraft allowed this culture to thrive; flight instruction was personal, and aviators had few detailed procedures or rules to follow in mastering their aircraft. "Seat of the pants" flying and individuality in technique were the orders of the day. Since piston-engine aircraft all operated essentially in the same way and roughly at the same speeds, especially when landing, and since they rarely flew at night or in bad weather, pilots could transition between aircraft easily and informally. Mr. Richard "Chick" Eldridge, a member of the Naval Safety Center staff for several decades, remembers his Navy flight training in 1943: "To my recollection, there was little emphasis on aviation safety. What safety information was imparted to the fledgling aviator came from the primary instructors. Lessons learned usually came in the form of 'gems of instructor wisdom.' You were simply told to fly certain maneuvers in a specific way or wind up as a statistic."[6]

The first thing to change was the technology. Culture change lagged by more than a decade, and the result was a virtual bloodbath. In addition to the specific challenges of flying jets must be added greatly increased speeds. Things happen much faster in jets, and a different mind-set and discipline are called for to avoid disaster. Pilots who had spent a good deal of time operating at propeller-aircraft speeds tended to have more difficulty adjusting to jet speeds than those who were introduced to jets early. The author observed this during the Navy's transition from the piston-engine S-2 Tracker carrier antisubmarine aircraft to the jet-powered S-3 Viking. The more senior pilots seemed to have the most difficulty, and indeed a number of them either quit, had accidents, or failed to pass flight checks. This was a serious issue as well for the fleet introduction of the A-3 Skywarrior. Initially, in addition to carrier pilots, the Navy brought into the A-3 program senior aviators from the land-based patrol community. A series of accidents and difficulties involving former patrol pilots prompted the commander of the Sixth Fleet to write a letter to the CNO recommending that only carrier-trained pilots be assigned to A-3 squadrons.[7]

In the early years of the jet transition, naval aviation remained wedded to its individualistic culture. Structured programs of training, detailed reference manuals, and disciplined evaluations of pilot performance did not exist in any



A-3 Skywarrior

Courtesy National Naval Aviation Museum

coherent way across naval aviation. But jets, with their higher speeds, challenging handling characteristics, and ever more complex systems, required just that. The horrible accident rates eventually drove the Navy to do something. Meanwhile, the Air Force, which had been suffering an increase in mishaps also, formed a Flight Safety Directorate, with 525 personnel, and undertook to impose discipline on the aviation corps by punishing crews after mishaps when fault and culpability could be assigned. The Navy's first effort at a flight-safety agency was puny by comparison, with only twenty-five personnel. However, in 1953 a war hero, Captain James F. "Jimmy" Flatley, wrote a highly critical and influential report on naval aviation safety that generated organizational and procedural changes that in turn went far to change the culture.[8] Along with them, a more structured program of flight training was introduced, eventually culminating in the establishment of replacement training squadrons that provided intensive and detailed instruction for newly "winged" aviators in the aircraft they would fly in the fleet. These squadrons would also become centers of flight and maintenance evaluation of fleet squadrons based with them. A variety of other measures also served to professionalize and discipline the naval aviation culture, including formal training for squadron safety officers, improved accident investigation techniques, specially trained medical personnel (called "flight surgeons"), the publication of a safety magazine to share stories of accidents and near misses, and top-down leadership that countered the laissez-faire cultural heritage.

However the "ready room" culture was resistant to change. Thus the authors of a 1961 *Naval Aviation News* article felt compelled to say, "Some people view

the idea of everyone in Naval Aviation doing everything 'the one best way' with some misgivings. They fear that general use of standardized procedures, while it may reduce the accident rate, will result in a reduction of a pilot's ability to 'think on his feet' and deal flexibly with emergencies and combat situations. Experience in other fields has proved that fear unfounded."[9] A major element of the resistance to change was the fact that adaptation to the new technology had a value content—that is, it made irrelevant certain skill sets that had been associated with being a "good" aviator. The issue was not so much the difficulty of learning new skills as reluctance to abandon old ones that were associated with professional virtue. The naval aviation culture that had grown up from 1911 to 1947 was intense, parochial, and value-centric. Moreover, likely because of the acrimonious relationship that developed between the two services in the late 1940s, there was a reluctance to view anything the Air Force did as appropriate for naval aviation.

The Navy has always placed considerable responsibility and authority in the hands of the individual officer. An imperative of war at sea, this delegated style of command and control has both enhanced and afflicted U.S. naval aviation. Throughout its history, outstanding decision making by relatively junior officers has made the difference in battle, such as when, during the battle of Midway, Lieutenant Commander Wade McClusky decided, in the air, to take his strike group in the direction a Japanese destroyer was headed and thus found the enemy aircraft carriers. Faced in the 1940s and '50s with new technology that demanded new types of procedural discipline and centralized management, the culture was slow to adapt, and many naval aviators lost their lives as a result.

FINDING THE RIGHT COMBINATION OF INGREDIENTS

The development of aviation technology between the Wright brothers' first flight and 1947 was amazingly fast. In just forty-five years aviation progressed from machines that were hardly more than powered kites to jets that pushed the speed of sound. This rapid development meant that individual models of combat aircraft became obsolete fairly quickly. This had been the case prior to and during World War II, and it was to be the case over the early years of jet transition in the Navy. The initial echelon of straight-wing jets had an operational life span in the fleet of only a few years, although some of them had longer, second lives in the reserves or specialized shore-based uses, such as in training commands. In the late 1940s and the early '50s, as whole squadrons transitioned from propeller airplanes to jets, pilots who had developed habits molded to straight-wing propeller planes that were slower, lighter, and simpler and burned fuel more slowly were put into fast, gas-guzzling jets. It was a lethal combination.

As the centennial of naval aviation approaches, it is interesting to observe that it has been jet powered for over half of its history. The transition was long and brutally expensive in terms of life and aircraft. However, it was, by any measure, a success. Throughout the Cold War and a series of hot wars—Korea, Vietnam, DESERT STORM, and others—naval aviation has been able to provide effective tactical airpower from the sea. Its ability to do this despite a long and difficult process of learning how to operate jet aircraft at sea is a tribute to the brilliance of various aircraft designers, the ingenuity of countless "airdales," the sailors who struggled to keep those complex and touchy machines flying, and the bravery (and perhaps foolhardiness) of the crews who would climb into jets that were hard to fly and lacked reliability and in those aircraft perform missions that took them to the edge of what man and machine could do.

NOTES

This article is adapted from a paper delivered at the U.S. Naval Academy's 2009 Naval History Symposium, held at Annapolis, Maryland, 10–11 September 2009. It will appear in different form in the forthcoming proceedings of that conference, *100 Years of U.S. Navy Air Power.*

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PIECES OF EIGHT

An Appraisal of U.S. Counterpiracy Options in the Horn of Africa

Lesley Anne Warner

Over the course of the past five years, maritime piracy off the coast of Somalia has been on the rise as the country has spiraled deeper and deeper into anarchy.[1] The United States responded in late 2008 and early 2009 with a variety of counterpiracy measures, ranging from strengthening the multinational naval presence in the Gulf of Aden and Indian Ocean to the signing of a memorandum of understanding (MOU) with Kenya to facilitate the prosecution of suspected pirates. However, despite assertions that lawlessness on land allows maritime piracy to emerge, present counterpiracy methods have failed to address poor governance and instability within Somalia. Instead, they have dealt only with the sea-based manifestations of land-based malaise. Ideally, a sustainable counterpiracy strategy would address root causes as well as symptoms, in both the short and long terms. By disaggregating Somalia's maritime insecurity from the insecurity it suffers on land, the United States and its international partners may well be unable to achieve a sustainable solution to piracy.

This article outlines the causal logic that led to the spike in pirate attacks off the coast of Somalia in recent years. It will then, after an overview of the nature of maritime piracy in this region, highlight the counterpiracy methods employed by the United States and assess their prospects for success or failure. It will conclude by proposing a comprehensive and sustainable counterpiracy strategy that targets both the root causes of piracy and the symptoms that emerge from lawlessness on land.

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UNDERSTANDING PIRACY AS A SYMPTOM OF LAWLESSNESS ON LAND

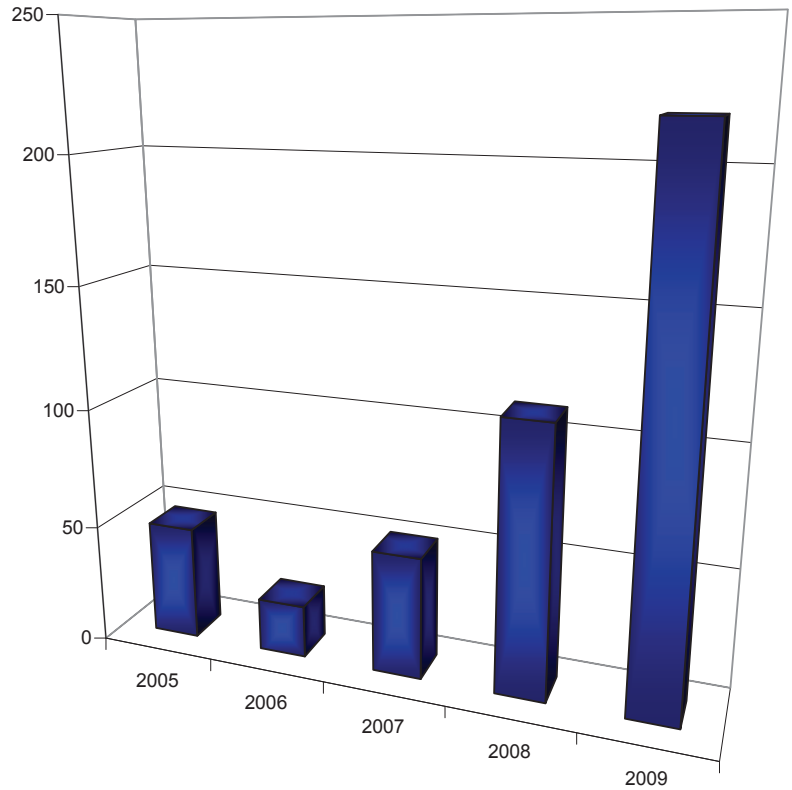
Since maritime piracy off the coast of Somalia is a result of the absence of governance on land projected out to sea, the unremedied collapse of the Somali state will be an insurmountable obstacle to a sustainable counterpiracy strategy. Somalia has been in a persistent anarchic state since 1991, when General Mohamed Siad Barre was overthrown and the country descended into clan-based civil war for control of the government. Eventually, the Somali state collapsed, destroying social services and the security-sector institutions that might have protected the country, its resources, and its citizens against internal and external threats.[2] The lack of governance and human security created a permissive environment on land and at sea that offered Somalis not only incentives to participate in criminal enterprises but also sanctuaries from which to do so. Given Somalia's proximity to one of the world's main sea lines of communications through the Gulf of Aden, Somali fishermen, unrestrained by a functioning coast guard or navy, seized the opportunity to engage in maritime piracy starting in the 1990s—initially claiming to be protecting Somali waters from foreign vessels that were fishing illegally off the country's coast.[3] (Current estimates state that more than three hundred million dollars' worth of fish is stolen each year from Somali waters.)[4]

To put piracy off the coast of Somalia in its contemporary context, pirate attacks off the coast of Somalia have increased overall during the course of the past five years, as shown below on figure 1.

However, pirate attacks decreased in 2006, which many analysts attribute to the rise of the Islamic Courts Union (ICU) in the middle of that year. The ICU was an umbrella movement comprising various factions that had gained control of much of south and central Somalia, essentially providing a degree of governance that had not existed in these regions since 1991. Asserting that it ran contrary to Islamic law, the ICU declared a war on piracy during the latter half of 2006. As a result of the ICU's grasp on power, attacks on maritime vessels dropped during these six months of relative order.[5] However, this relative order was short-lived, as extremist elements within the ICU provoked a conflict with Ethiopia, as a result of which Ethiopia invaded Somalia in December 2006 and the ICU lost control over the territory it had previously controlled. Pirate attacks subsequently increased in early 2007 and continue to plague the region to the present day.[6]

This chronic lack of governance on land and resultant absence of maritime security spurred a rash of pirate attacks that escalated in frequency, range, and cost to global maritime commerce in 2008, as pirate attacks off the coast of Somalia accounted for 111 of the 293 reported incidents of piracy worldwide.[7]

FIGURE 1
PIRATE ATTACKS OFF THE COAST OF SOMALIA, 2005–2009



Source: ICC—International Maritime Bureau, *Piracy and Armed Robbery against Ships Report: Report for the Period 1 January–31 December 2009.*

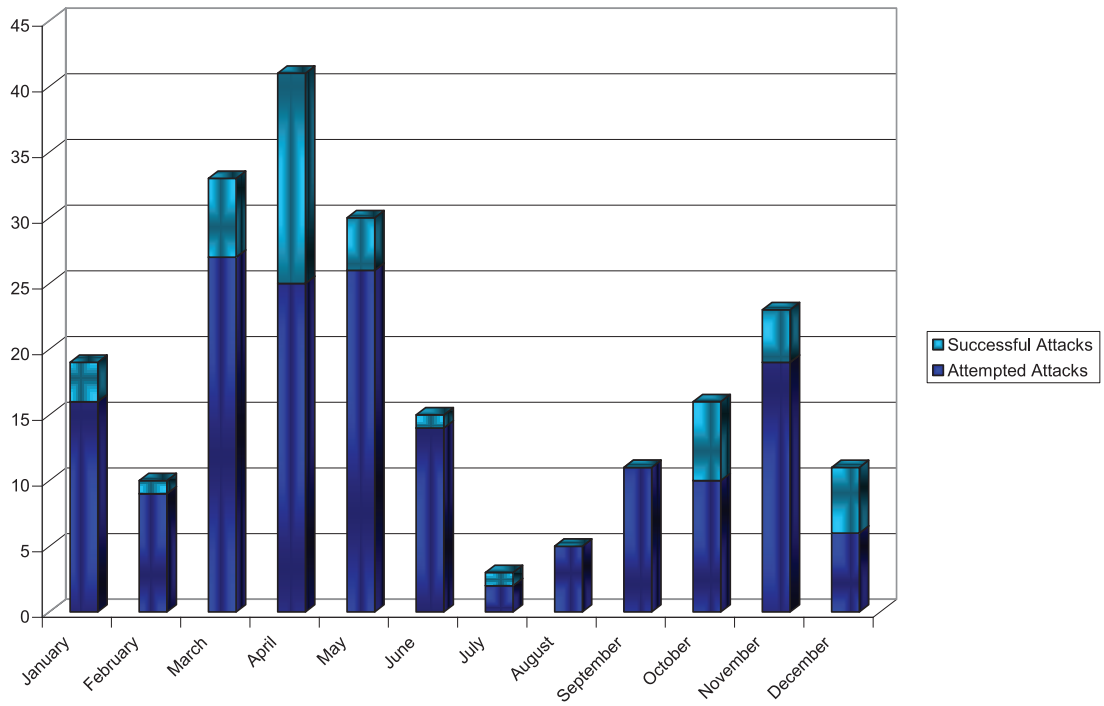
In 2009, attacks in this region accounted for 217 out of 406 attacks worldwide.[8] Attempted and successful pirate attacks off the coast of Somalia by month in 2009 are detailed in figure 2.

The trends that appear to be emerging suggest that pirates in this region have been able to adapt rapidly to their changing environment. In 2009, pirates greatly expanded their range of operations, operating as far north as Oman and as far south as the Seychelles and Madagascar, attacking up to 1,100 miles from Somalia's coast. In addition, to decrease the chance of detection, pirates have increasingly operated at night.[9]

U.S. GOVERNMENT COUNTERPIRACY POLICY

Recent American maritime security strategy and policy documents related to piracy include but are not limited to the *United States Maritime Security (Piracy) Policy* (released in 2007 as a new annex, "Policy for the Repression of Piracy and Other Criminal Acts of Violence at Sea," to the 2005 *National Strategy for Maritime Security*) and *Countering Piracy off the Horn of Africa: Partnership and Action*

FIGURE 2
SUCCESSFUL AND ATTEMPTED PIRATE ATTACKS OFF THE COAST OF SOMALIA, JANUARY–DECEMBER 2009



Source: ICC—International Maritime Bureau, *Piracy and Armed Robbery against Ships Report: Report for the Period 1 January–31 December 2009.*

Plan, published in 2008.[10] The *Maritime Security (Piracy) Policy* identifies piracy as a threat to national security, associating it with such other forms of maritime insecurity as illegal fishing, smuggling, and terrorism and urging that it be addressed within a multilateral and interagency policy framework. The *Partnership and Action Plan* outlines three lines of action to repress piracy—preventing pirate attacks by reducing the vulnerability of the maritime domain, interrupting acts of piracy, and holding pirates accountable by prosecuting them.[11]

The week following the MV *Maersk Alabama* incident in April 2009, Secretary of State Hillary Rodham Clinton articulated a new counterpiracy strategy.[12] It included developing an expanded and better-coordinated multinational response, exploring the tracking and freezing of pirate assets, working with the shipping industry to address gaps in self-defense measures, and engaging diplomatically with Somalia's Transitional Federal Government (TFG) and authorities in Puntland to combat piracy in their territories.[13] Finally, it addressed improvement in Somalia's capacity to police its own territory, assistance to Somali authorities in cracking down on pirate bases, and reduction of incentives for Somalis to engage in piracy.[14]

In spite of the evolving contemporary U.S. maritime security strategy and its efforts to explore diplomatic, military, economic, and legal means by which to combat piracy, specific counterpiracy methods have thus far been unbalanced, with more emphasis placed on addressing the symptoms of instability on land than on the actual conditions that allowed lawlessness on land to create lawlessness at sea. Nonetheless, it appears that the United States is gradually recognizing the need to adapt to the limitations of current policies and turn its counterpiracy strategy in the direction of conceptually linking efforts to eliminate insecurity at sea with those to eliminate insecurity on land.

POTENTIAL COUNTERPIRACY METHODS

Eight counterpiracy methods are either currently in use or under consideration by the United States:

- Accepting piracy as a cost of doing business
- Tracing and targeting pirate finances
- Increasing the defenses of merchant vessels
- Addressing legal impediments to combating piracy
- Continuing multinational naval patrols
- Pursuing kinetic operations on land
- Building local and regional maritime security–sector capacity
- Building local and regional security-sector capacity on land.

The following pages examine these methods, assessing the strengths and weaknesses of each.

Accepting Piracy as a Cost of Doing Business

In 2009, of the approximately thirty thousand vessels that pass through the Gulf of Aden every year, 217 were attacked. Of these, only forty-seven were successfully hijacked.[15] Given that only 0.72 percent of the ships that traversed the gulf were attacked in 2009, it is easy to argue that the international community should simply accept the payment of ransoms to pirates in this region as an added business expense.

Despite the fact that there is no universally accepted method for enumerating the various costs of piracy, several analysts have attempted to assess the cost of piracy to global maritime commerce. Contemporary estimates range between $500 million and $25 billion per year.[16] The burdens imposed on governments and the shipping industry by piracy are often passed on to taxpayers and consumers:

- Rerouting ships to bypass pirate-infested waters such as the Gulf of Aden, adding three thousand miles and from two to three weeks to voyages, incurring additional fuel costs of $3.5 million per year for tankers and $74.4 million per year for the liner trades
- Opting to pay higher insurance premiums, which have increased from only five hundred dollars in 2007 to approximately $20,000 per ship per voyage, excluding injury, liability, and ransom coverage
- Paying ransoms, totaling between $30 million and $150 million in 2008
- Paying ransom-delivery costs, negotiation fees, and lawyer fees
- Hiring licensed private security guards (up to $60,000 for the voyage through the Gulf of Aden), as well as absorbing the additional insurance costs associated with embarked security teams or armed sailors
- Installing nonlethal deterrent equipment and employing personnel to operate it, at a cost of $20,000 to $30,000
- Paying higher wages to crews of vessels transiting waters where pirate attacks are considered likely
- Sustaining a multinational naval presence in the Gulf of Aden and Indian Ocean, at a cost of between $250 million and $400 million per year.[17]

To put these figures into context, global maritime commerce ranges in the trillions of dollars, so current estimates of losses to piracy are comparatively small.[18] Nonetheless, continued piracy off the coast of Somalia poses a grave threat to global maritime commerce because of the country's proximity to the Gulf of Aden, which is a major sea line of communication. With the opportunity to target any of the thirty thousand vessels that transit the Gulf of Aden every year, pirate attacks would not only continue, but also escalate in range, frequency, and possibly even lethality due to the opportunity for high and reliable profits from continued ransom payments and the lack of sufficient deterrents to continuing such activity. Ransoms paid to pirates operating off the coast of Somalia have increased from 2004 to the present—from about $500,000 per vessel to upwards of $5.5 million.[19] Pirates have learned quickly that publicity pays. For example, publicity from the fall 2008 hijackings of the MV *Faina* and the MV *Sirius Star,* large ships with controversial or valuable cargoes, enabled the pirates to negotiate higher ransoms—a process for which a clear, yet elaborate, mechanism has been established.[20]

Continued piracy off the coast of Somalia also has negative implications for other littoral states, especially for Kenya, Tanzania, and Yemen, whose port cities may receive fewer port calls as a result. Additionally, continued attacks have

negative effects on Egypt, in terms of forgone revenue from vessels that would have passed through the Suez Canal and paid tolls but decided not to transit the pirate-infested Gulf of Aden.[21] Furthermore, inland markets in East and Central Africa that depend on imports from ports on the Indian Ocean may also face increased costs when many of their economies are struggling to recover from the recent global financial crisis. Finally, continued pirate attacks off the coast of Somalia risk disrupting the United Nations World Food Programme's (UN WFP) food shipments to Somalia—90 percent of which are delivered by sea, to feed a third of the nation's population.[22]

Naturally, one option would be for shipping companies that own hijacked vessels to refuse to pay ransoms. By paying ransoms these companies contribute to further destabilization of the region, because the influx of cash enables warlords to continue their conflicts on land. Additionally, concerns have emerged regarding the possibility that pirates might cultivate ties to terrorist groups that may be affiliated with al-Qa'ida such as al-Shabaab—albeit out of convenience, not shared ideology.[23] However, prohibiting payment of ransoms by shipping companies may be impractical, because these companies could face pressure from politicians, the media, and the families of captured sailors to pay in order to ensure the safety of the crews and cargoes of hijacked ships.[24]

Tracing and Targeting Pirate Finances

Pirate gangs operating out of Somalia derive funding, among other benefits, from an extensive network of support.[25] One way to erode this network could be to trace and target pirate finances, much as is being done to counter other illicit activities, such as drug trafficking and terrorism.

Investigation of pirate finances would reveal information concerning the structures of pirate gangs, relationships within and among them, and their domestic and foreign financiers. Targeting pirate finances might erode some of the active or tacit support pirates gain from spreading money to local officials and relatives, who then become part of the pirates' logistical and intelligence networks.[26] Since piracy in this region is a crime of economic incentives and not one of ideology, once the money dries up, this support network is likely to do the same. Integral to this approach would be increased information sharing regarding pirate financials among local, regional, and international partners.

A limitation of tracing and targeting pirate finances, however, is that not all ransoms are paid through formal banking processes. In fact, some involve the transfer of money through informal channels that leave no paper trail; some have even been paid in cash, parachuted onto the decks of hijacked vessels. Applying pressure on such informal banking methods could have the unfortunate and unintended consequence of driving them farther underground, making

them more difficult to trace. The question also arises as to whether authorities in Somalia or even regional states are capable of targeting and seizing pirate assets.[27] Some government officials in Somalia and abroad have been accused of complicity in networked pirate activity, raising the prospect of pirate gangs being tipped off in time to protect their assets. The country's cash-based economy also poses challenges for tracking ransoms or start-up logistical money from Somali businessmen.[28] Finally, pirates have proved to be adaptive, and it is safe to assume that they will learn to adapt to the tracing and targeting of their finances until the underlying economic incentives—for the pirates and for the communities that provide them sanctuary—are eliminated once and for all.[29]

Increasing the Defenses of Merchant Vessels

The shipping industry has been an integral part of the search for a counterpiracy strategy. In January 2009 representatives of twenty-four countries held the inaugural meeting of the Contact Group on Piracy off the Coast of Somalia, creating four working groups.[30] Working Group 3 is led by the United States, with the support of the International Maritime Organization (IMO), and is working to strengthen shipping industry self-awareness, security, and commercial industry coordination. The Contact Group now has nearly forty countries and international organizations as members or observers, including the United Nations, the European Union (EU), the North Atlantic Treaty Organization (NATO), the African Union (AU), and the IMO. In February 2009 representatives of the international shipping industry released a document of best management practices, advising vessels transiting afflicted areas on how to avoid, deter, or delay pirate attacks.[31] Finally, at the Contact Group's May 2009 meeting, Panama, Liberia, the Bahamas, and the Marshall Islands—whose flag registries together comprise more than half of the world's shipping by gross tonnage—signed the New York Declaration, stating that they agreed to promulgate best practices to protect ships against pirate attacks.[32]

Thus far, nonlethal ship protection against pirate attacks has evolved to include increased surveillance; transit of piracy-prone areas at night, utilizing night vision equipment for early detection of pirate skiffs; frequent course changes and evasive maneuvers; transit in convoys, possibly escorted by warships, or at least in frequent contact with them; operational communications security protocols preventing disclosure on radio channels of cargoes, intended routes, or the presence or absence of onboard security, in order to prevent intelligence-driven attacks; use of maximum safe speeds; rehearsal of lockdown procedures and seclusion of crews in the pilothouse out of the reach of pirates; the lining of ships with netting, barbed wire, or electric fencing; the spraying of slippery foam on deck in the event of attack; and onboard training teams for nonlethal

response techniques, such as long-range acoustic devices, lasers, flares, microwaves, and water hoses.[33]

Increasing the defenses of merchant vessels generally is certainly a step in the right direction, since it provides some degree of protection for ships that have been relatively vulnerable. Particularly, nonlethal techniques have been so successful that 80 percent of attempted pirate attacks are now foiled without assistance from warships on patrol.[34] Nevertheless, they have limitations: they can still represent delaying tactics at best for the remaining 20 percent of merchant vessels that were successfully hijacked; also, crew members operating them are often vulnerable to fire from heavily armed pirates. In contrast, lethal defenses, such as firearms, could have a deterrent effect on the calculations of pirates, who might consider the risks of death or capture higher if they know that merchant vessels may be armed. Possibilities that have been broached are training and equipping seamen with small arms and embarking private security teams on board merchant vessels transiting pirate-infested waters.

In June 2009 the House of Representatives proposed two bills designed to increase the security of U.S.-flag vessels against pirates. An amendment to House Resolution 2647 (signed into law in October 2009 as the National Defense Authorization Act for Fiscal Year 2010), requires the Department of Defense to place military personnel on the approximately fifty-four U.S.-flag vessels that carry weapons or military supplies through the waters off the Horn of Africa each year, in order to prevent military equipment from falling into the hands of pirates. This requirement will last until either 30 September 2011 or when the Secretary of Defense notifies Congress that there is no longer a credible piracy threat to U.S.-flag vessels carrying government cargo—whichever comes earlier.[35] House Resolution 2984, the "Mariner and Vessel Protection Act," in committee at this writing, would allow vessels carrying arms to enter international ports, authorize the embarkation of Coast Guard maritime safety and security teams on U.S.-flag ships transiting pirate-infested waters, and grant immunity to civilian sailors who, having received firearms training from the Coast Guard, wound or kill pirates during attacks.[36]

On the downside, arming seamen or embarking security teams on merchant vessels presents a new set of questions. First, arming merchant vessels may well escalate the violence of pirate attacks by encouraging gangs to invest in the quality and quantity of weapons and to alter their calculations with regard to the use of force.[37] Second, arming crews poses safety and training issues and offers no guarantee that they would be proficient enough to fend off heavily armed pirates.[38] Third, there may be increased insurance costs associated with embarked security teams or armed sailors, and the shipping industry may calculate that

it is cheaper to pay ransoms on the odd chance that a ship does get successfully hijacked.[39] Fourth, many international ports do not allow armed merchant vessels to enter, although this obstacle could be overcome by dispatching armed security teams in separate escort ships, which would stay at sea. Finally, arming merchant vessels raises legal and liability issues, specifically as they pertain to whether recognized governmental authorities will provide armed protection or whether the task will be outsourced to private security firms. The latter opens the door for very complicated debates regarding rules of engagement, jurisdiction over captured pirates, and the oversight and regulation of private security counterpiracy operations.

Addressing Legal Impediments to Combating Piracy

The current legal framework for addressing maritime piracy has been one of the many impediments to combating piracy, with regard to how it addresses issues of state sovereignty, rules of engagement, jurisdiction, and "persons under control" (PUCs).[40] Compounding these difficulties is the fact that the Somali government is incapable of providing its own legal deterrent to piracy. Nor can other states in the region process the number of pirates apprehended by navies patrolling the waters of the Gulf of Aden and the Indian Ocean.

The 1982 United Nations Convention on the Law of the Sea (UNCLOS) and the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation collectively establish the definition of modern piracy and the basis of the legal framework, including provisions to render suspected pirates to littoral states (if they are signatories to these conventions) where attacks take place. In addition, between June 2008 and December 2009 six UN Security Council resolutions were passed urging states to use the necessary means in conformity with international law for the repression of acts of piracy, including authorization for states cooperating with the TFG to enter Somali land or territorial waters to combat piracy.[41]

Among the many impediments that remain is the fact that multinational naval patrols off the coast of Somalia have occasionally been obliged to "catch and release" suspected pirates after confiscating their weapons and skiffs, because no nations would accept them for trial. In some of these countries, penal codes do not treat piracy as a punishable offence; other countries can arrest suspected pirates only if their own interests are directly affected.[42] Compounding these challenges, jurisdiction can be difficult to determine, because several countries might be affected by an actual or attempted act of piracy, such as the vessel's flag state, the state of the company that owns the vessel, the state of the company that owns the cargo, the states of which crew members are nationals, and the state of the warship that disrupted the attack.[43]

The alternative, prosecuting pirates outside the region—in the United States or in Europe, for example—would bring its own set of complications. Whether trials of suspected pirates are held in the region of the attacks or further abroad, adherence to international norms of human rights means that countries that accept pirates for prosecution must ensure that suspects are not detained for long periods of time, which could be a problem for countries with overburdened legal systems or for cases that require the transport of pirates, witnesses, and evidence over long distances.[44] Additionally, suspected pirates may claim asylum if brought to Europe or the United States, asserting that their lives would be endangered by the continual warfare and desperate human conditions they would face should they be found innocent and returned to Somalia.[45] This latter factor threatens the legal deterrent effect that an enhanced international legal framework should ideally have.

One solution to these impediments would be to strengthen the ability of regional states' judicial systems to investigate and prosecute suspected pirates and to incarcerate those convicted. Kenya has signed MOUs with the United States, the United Kingdom, Denmark, and the EU to prosecute captured pirates in their court systems on a case-by-case basis. Regional states have also explored the possibility of assembling teams of law enforcement ship riders that can board warships, begin criminal investigations at sea, arrest suspected pirates in the name of the teams' countries, and then send them for trial in those nations in order to address some of the problems with PUCs, jurisdiction, and regional legal capacity.[46] Such initiatives could be supported through capacity-building activities coordinated by the U.S. Coast Guard law enforcement detachments (LEDETs) and the Naval Criminal Investigative Service (NCIS) teams supporting Combined Task Force 151 (discussed below). Finally, an international tribunal for prosecuting pirates could resolve many of the jurisdictional problems that have arisen, make trials more efficient, and speed up prosecutions that would have burdened the underdeveloped judicial systems of regional states.[47]

The evolution of an international legal framework to combat piracy is a positive development, because it seeks to bolster the presently weak legal deterrent for current and prospective pirates. Kenya, in exchange for agreeing to try some of the suspected pirates, will receive assistance to strengthen its judicial system, which should have the broader benefit of expanding the country's capacity to enforce the rule of law and address other threats to security and stability. This method, if applied to other regional states, could have similar impact on their judicial systems.

However, as things stand now, prosecution of suspected pirates in regional countries may present bureaucratic and financial burdens, clogging jails and

courts and even fomenting social unrest. For instance, Kenya's judicial system is engulfed in a debate over whether to prosecute those who instigated violence following the 2007 presidential election; allegedly, the country's judicial system already has a backlog of cases.[48] In addition, Kenya may wish not to be a dumping ground for captured pirates, because making it the centerpiece of pirate prosecution efforts could inflame the country's Somali refugee population, as well as its own Muslim population.[49]

Continuing Multinational Naval Patrols

In support of UN Security Council resolutions passed in 2008 and 2009 in response to the rise in pirate attacks off the coast of Somalia, the United States and several international partner nations began to increase air and sea patrols of the areas where attacks were most likely to take place. In August 2008, the United States established a movable Maritime Security Patrol Area (MSPA) along the Yemeni coast to allow a limited number of warships to protect a greater number of merchant vessels by concentrating the vessels in number and proximity. In January 2009, ships from over twenty nations joined or otherwise cooperated with Combined Task Force 151 (CTF 151) to engage in counterpiracy operations in the Red Sea, Arabian Sea, Indian Ocean, Gulf of Oman, and Gulf of Aden. CTF 151 is one of three task forces of Combined Maritime Forces (CMF), a coalition of over twenty countries operating in a 2.5-million-square-mile area.[50] CMF had been established in February 2002 by U.S. Naval Forces, Central Command to "deter destabilizing activities to create a lawful maritime order by defeating terrorism, deterring piracy, reducing illegal trafficking of people and drugs as well as promoting the maritime environment as a safe place for mariners with legitimate business."[51] In order to increase the effectiveness of coordination on counterpiracy measures at sea, CMF hosts Shared Awareness and Deconfliction (SHADE), which involves regular workshop-style meetings of staff-level officers from the various operational headquarters. SHADE is designed to provide opportunities for navies to share information, streamline tactics, and ensure that assets are used efficiently and with the desired effect.[52]

In February 2009, the Internationally Recommended Transit Corridor (IRTC), extending 464 miles along the southern coast of Yemen and the northern coast of Somalia, became operational, and coalition warships began to escort merchant vessels through it. The area off the coast of Somalia is patrolled by approximately thirty warships contributed by CMF, the EU's Operation ATALANTA, NATO's Operation OCEAN SHIELD, and navies from such countries as Russia, India, China, Iran, and Japan.[53] In addition, the United States and its partners monitor pirate activity on the high seas; conduct visit, board, search, and seizure (VBSS) of suspected pirate skiffs; and provide surveillance of vessels

that have been hijacked—much as USS *Bainbridge* and *Boxer* did during the *Maersk Alabama* incident.

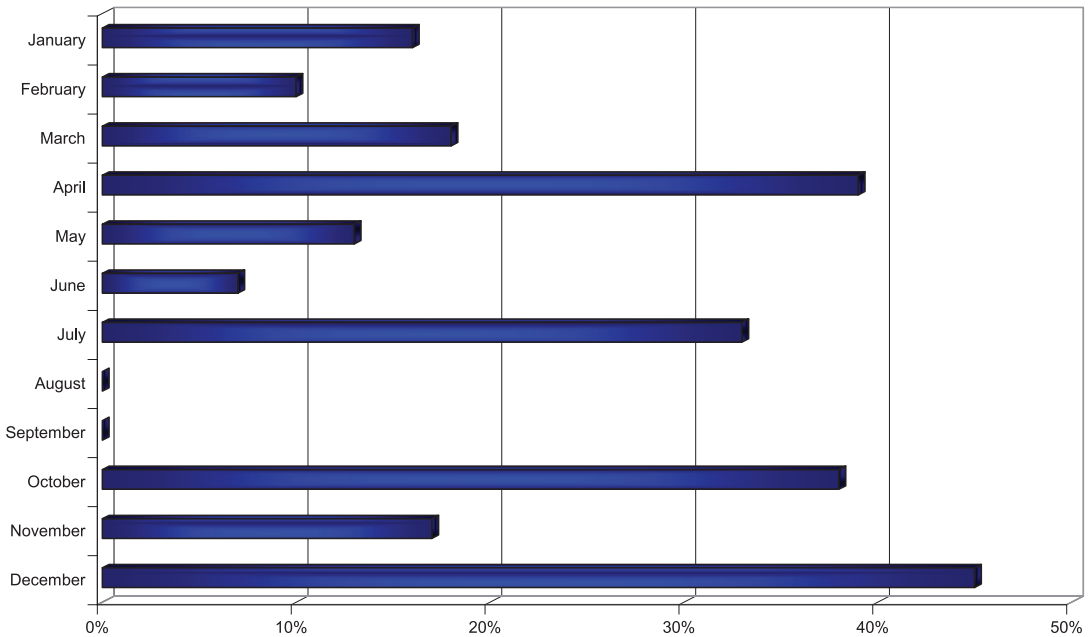
As both the U.S. Navy and Coast Guard have the authority to conduct counterpiracy operations, CTF 151 is supported by both Coast Guard law enforcement detachments and teams of NCIS personnel on board ships in order to address some of the legal impediments to combating piracy that have arisen.[54] LEDETs are responsible for supplementing Navy VBSS teams in maritime interdiction operations, training them on issues concerning maritime law, boarding policies and procedures, evidence collection and preparation, and safe and humane treatment of suspects. Upon encountering a suspected pirate vessel, air and sea assets attempt to compel it to allow boarding.[55] A LEDET team goes on board first, to secure and search the skiff, preserve evidence, and radio its assessment of the situation. Once the vessel is secured, an NCIS team joins the LEDET, and together they perform a crime-scene investigation, collecting, logging, and securing evidence so as to ensure chain of custody until it can be handed over to a judicial authority. If the CTF 151 commander determines that there is sufficient evidence to prosecute, suspected pirates are detained until they can be rendered for trial in a state willing to accept them.[56]

A naval presence off the coast of Somalia presumably forces pirates to project their attacks farther out to sea, aside from disrupting or deterring attacks where warships are close enough to protect threatened vessels. Additionally, depending on weather, naval patrols can be scaled back between May and September and from December to March, when Indian Ocean monsoons produce swells reaching ten to fifteen feet and pirate skiffs cannot effectively stalk vulnerable merchant vessels. (However, pirate attacks tend to increase following periods of poor weather conditions.)[57] Finally, a measure that has not been taken thus far but may be under consideration is the establishment of a maritime exclusion zone adjacent to the Somali coastline.[58]

Despite the palpable deterrent that a naval presence represents, pirates appear to have developed a fair understanding of the gaps in naval capabilities. Notwithstanding the MSPA, IRTC, and the patrols of warships from over twenty navies, pirate attacks off the coast of Somalia in 2009 still accounted for over half of the attacks worldwide.[59] However, on average the success rate for pirate attacks for this time period was just over 21 percent, compared with 40 percent for the year 2008.[60] Success rates by month in 2009 are detailed in figure 3.

Although pirate attacks had lower rates of success in 2009 than in 2008, coalition maritime forces on the whole simply do not have enough warships to patrol off the coast of Somalia and protect the tens of thousands of ships that traverse these waters annually. Responding to an analysis positing that it would take a

FIGURE 3
SUCCESS RATES OF PIRATE ATTACKS OFF THE COAST OF SOMALIA, JANUARY–DECEMBER 2009



Source: ICC—International Maritime Bureau, *Piracy and Armed Robbery against Ships Report: Report for the Period 1 January–31 December 2009.*

force over three times the size of the entire U.S. Navy to fight piracy effectively, Admiral Michael Mullen, chairman of the Joint Chiefs of Staff, pointed out that the Navy has other pressing priorities as well, in other parts of the world.[61] Furthermore, the Chief of Naval Operations, Admiral Gary Roughead has pointed to a need for counterpiracy approaches that complement naval patrols, such as the combined sea and shore strategy that was so instrumental in curbing piracy in the Strait of Malacca earlier this decade.[62] Both the attack trends and the statements of Navy leadership highlight the limitations inherent in a purely naval approach to countering piracy.[63]

There are specific operational difficulties as well. For example, it has been estimated that escorting merchant vessels between the Red Sea and Mombasa alone would require seventy-two ships—more than currently operate in the entire region at any given time.[64] In any case, organizing convoys under escort would compel merchant ships to follow schedules that may not meet market requirements.[65] Since convoys move at the speed of the slowest member, a containership would have to travel as slowly as a tanker.[66] Finally, for many countries, contributing to a sustained naval presence off the coast of Somalia is extremely costly and plagued by logistic hurdles.

Pursuing Kinetic Operations on Land

One of the options to consider in order to counter piracy off the coast of Somalia might include a range of kinetic methods targeting the land-based aspects of piracy. On the lower end of the scale, the international community could mobilize to launch air strikes or amphibious raids designed to dismantle pirates' bases and infrastructure and to destroy their ability to launch attacks out at sea. At the higher end, surgical air strikes could be followed by military occupation of the territories from which pirates launch their attacks, providing security (and eventually enabling governance) and preventing pirates from operating.

The unequivocal attractiveness of kinetic methods applied ashore lies in the argument that as pirates and their support networks reside ashore, they should be targeted there. Furthermore, a credible threat of military force could compel Somali clan leaders and businessmen to clamp down on pirate activity, reducing it to a level that may turn a profit but that the international community may be willing to ignore.[67]

In reality, the United States is unlikely to launch air strikes or send in troops for several reasons.[68] First, attacks on pirate bases or an outright military occupation would certainly undermine President Sheikh Sharif Ahmed's TFG, which already has plenty of obstacles to overcome. Even with—or especially with—the consent of the TFG, an American attack could provoke greater support among the population for the pirate gangs or even for ideological groups like al-Shabaab. Second, there is resistance within the United States to reengaging militarily on land in Somalia, as a result of the October 1993 Black Hawk Down incident, in which eighteen American soldiers were killed while supporting the United Nations Operation in Somalia, known as UNOSOM II, which was attempting to avert a humanitarian crisis in Somalia. Third, there appears to be insufficient intelligence to allow pirate infrastructure to be targeted without inflicting civilian casualties, which could further destabilize the country and energize al-Shabaab.[69] Fourth, international norms of human rights dictate that the United States could not simply kill suspected pirates encountered but would have to develop a method to capture them, put them on trial within an acceptable and humane amount of time, and incarcerate those convicted, which raises legal complications similar to those already discussed. Lastly, were there to be any sort of military intervention, Western humanitarian relief organizations currently providing services that the Somali government has been unable to offer since 1991 could be targeted for reprisals.[70]

Building Local and Regional Maritime Security–Sector Capacity

Building local and regional maritime security–sector capacity may provide a deterrent against pirate attacks, finally making pirates accountable for their

destabilizing activities. To make these countries capable of contributing to maritime security in the Gulf of Aden and Indian Ocean, the United States and its partners could enhance their engagement with maritime security–sector institutions in Somalia and neighboring littoral countries, such as Djibouti, Kenya, Madagascar, Mauritius, the Seychelles, Tanzania, and Yemen.

Somalia has already requested assistance in the form of training and equipment from the international community to establish a coast guard to help tackle piracy. The TFG has also been training five hundred young men to serve in the Somali navy, which its chief hopes will eventually have five thousand men.[71] However, training has thus far taken place on land, since the force has no operational ships. Although Somalia would like to provide for its own maritime security, its transitional government is likely to be preoccupied in the short term with staving off defeat by various insurgent groups and gaining control of its own capital city.[72] Consequently, the maritime security gap will have to be filled by regional and international partners in the meantime.

Regrettably, however, most countries in the region are currently ill equipped to provide maritime security even for themselves, let alone Somalia; they lack the requisite training and equipment, and their security forces have traditionally been land focused. In order to build their capacity to deal with maritime threats, the United States and international partners could augment security cooperation agreements, offering to train maritime security personnel; equip and assist in the maintenance of vessels; share best practices for the collection, sharing, and synchronization of intelligence; provide aerial surveillance; and coordinate multilateral naval training exercises designed to increase regional cooperation.[73] Ideally, these countries would eventually be able to patrol with international partners by air and sea; conduct surveillance of the littoral zone; facilitate the collection, analysis, and dissemination of information on possible maritime threats; encourage interagency and multinational cooperation; and harmonize maritime doctrines.[74]

As a step in the right direction, Djibouti, Ethiopia, Kenya, Madagascar, the Maldives, the Seychelles, Somalia, Tanzania, and Yemen signed in February 2009 a code of conduct to counter piracy, agreeing to establish counterpiracy information centers in Mombasa, Dar es Salaam, and Sanaa and a counterpiracy training center in Djibouti.[75] Also, in June 2009, Bahrain, Djibouti, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Sudan, the United Arab Emirates, and Yemen agreed upon the formation of an Arab Anti-Piracy Task Force to provide maritime security for states in the region and enhance cooperation with multinational naval patrols.[76] In addition, Kenya and Tanzania have pledged to start joint naval operations, and in the spring of 2009 the Seychelles became the first

East African nation to assist in operations carried out by the EU's Operation ATALANTA.[77]

Increased coordination among regional stakeholder states could set precedents for sustained regional maritime security cooperation that could be extended to other maritime security threats, such as arms trafficking, human trafficking, drug trafficking, and illegal, unreported, and unregulated fishing (which was arguably what drove Somali fishermen to pursue piracy on a much smaller scale in the 1990s). Regardless, the present limitations of local and regional maritime capacity mean that the benefits of such regional and international initiatives are more likely to have concrete impact over the long term than in the immediate future.

Building Local and Regional Security-Sector Capacity on Land

As a result of the security and governance vacuum in Somalia, lawlessness ashore is likely to continue to create lawlessness at sea unless security-sector capacity can be built up both in Somalia and in neighboring states. In order to build this capacity with the intent that these countries would increasingly contribute to the provision of security in the region, the United States and international partners could enhance engagement with local and regional security-sector institutions on land.

Given the fact that Somalia lacks functional governing institutions to support a security sector, one will have to be built from scratch, which will require a costly and sustained whole of government multinational commitment. International security assistance could equip Somalia to develop a police force and military supported by robust security-sector institutions that could enable the country to address the security and governance vacuum that allows pirates and insurgents to thrive. That said, the TFG is currently extremely weak, controlling little territory within the country it purports to govern. In the meantime, the United States and its partners could address capability gaps in regional partner nations like Kenya and Djibouti, in nations that do not share a border with Somalia (such as Tanzania, Uganda, Burundi, and Rwanda), and in regional and subregional organizations like the AU and the Intergovernmental Authority on Development. Ideally, the regional militaries could become more able and willing to build governing institutions in Somalia and help provide security there, in the event of a more viable and inclusive peace agreement.

However, it is for all intents and purposes impossible to disaggregate Somalia's problems, whether on land or at sea, from other conflicts in the region, such as the proxy war often fought on Somali soil between Ethiopia and Eritrea, and Ethiopia's internal security concerns in the Ogaden region.[78] Though it is important to attempt to maintain dialogues with Ethiopia and Eritrea on the situation

in Somalia, it might be advisable therefore to exclude them from efforts to build capacity specifically to address instability there. Furthermore, the international community will have to remain sensitive to Kenya's concerns via-à-vis its own internal security issues. With lucrative foreign investments, a tourism industry shaken by electoral violence two years ago, and almost three hundred thousand Somali refugees along the porous border with Somalia, Kenya takes very seriously the threats issued by al-Shabaab to launch terrorist attacks in Kenya if the country were to become militarily involved in Somalia.[79]

The international community should also consider concrete financial, logistical, and political support to the African Union Mission in Somalia (AMISOM) and any successor multinational peacekeeping forces so that they might become capable of achieving their strategic, operational, and tactical objectives.[80] AMISOM was authorized by a communiqué of the sixty-ninth meeting of the Peace and Security Council of the African Union, on 19 January 2007.[81] One of just a handful of AU peacekeeping missions, AMISOM was essentially stillborn in the face of a challenging security environment in Somalia as well as operational and tactical setbacks. It was initially authorized for six months from the date of the communiqué, with a mandate (set out in paragraph nine of the UN Security Council Resolution 1772) that included:

- Providing support to transitional federal institutions, to help them carry out their functions of government
- Supporting dialogue and reconciliation in Somalia
- Providing security for key infrastructure
- Assisting with the implementation of the National Security and Stabilization Plan, in particular the effective reestablishment of the Somali security forces
- Facilitating the provision of humanitarian assistance.[82]

AMISOM's mandate has been extended several times, most recently to 31 January 2011, as authorized by UN Security Resolution 1910.[83]

In addition to a mandate that was restricted to self-defense and the protection of a weak and divided government, AMISOM has encountered several difficulties. AMISOM has suffered from unfulfilled commitments made by the international community. The original understanding was that AMISOM would evolve into a UN peacekeeping mission upon the expiration of its initial mandate in June 2007, but as of early 2010 this has not occurred. AMISOM has been able to muster only 5,200 of its authorized troop strength of eight thousand soldiers, which have been contributed by Uganda and Burundi, although Nigeria, Ghana, and Malawi pledged troops that were never deployed. Also, the AU, unable to finance the mission on its own, had to rely on ad hoc international

financial assistance for training and equipment, which has proved insufficient. Additionally, although initiated and staffed by African personnel, AMISOM was perceived in Somalia as a tool of Western interests, and its soldiers were consequently targeted by insurgents.[84] Finally, AMISOM forces were accused of human rights violations, having used indiscriminate violence to defend themselves against attacks. Only in the spring of 2009 did AMISOM change tactics, returning fire only if attackers could be visually identified, but by that time their actions had already further alienated the population from the TFG.[85]

ADEPT AND CULTURALLY SENSITIVE ENGAGEMENT

Piracy off the coast of Somalia must be analyzed in the context from which it emerged if a comprehensive and sustainable response is to be crafted. Piracy is a symptom of instability on land; as such, counterpiracy methods that focus on the symptoms of lawlessness on land rather than on its root causes do little to mitigate the conditions that allowed piracy to emerge in the first place. Because piracy is a land-based enterprise, possible counterpiracy solutions must be assessed in terms of how they would positively impact conditions ashore.

In the preceding paragraphs, the author outlined a variety of counterpiracy methods. Assuming pirate attacks would escalate in range, frequency, and lethality were they to be accepted as a cost of doing business, this option may be infeasible. However, the remaining methods could have a positive impact if their strengths are pursued in concert. In order to reach maximum effectiveness, an ideal counterpiracy strategy would address the catalysts of instability as well as its manifestations in the maritime domain.

A comprehensive and sustainable strategy to address piracy off the coast of Somalia would entail the United States working with regional and international partners to trace and target pirate finances, albeit with a clear understanding of the limitations of this approach in Somalia's cash-based economy. Additionally, international stakeholders would have to be conscious of the inability of this method to target the underlying conditions that allowed piracy to emerge in the first place.

The U.S. government should also maintain its engagement with the shipping industry, not only to make nonlethal ship defenses more effective and widespread but also to explore how seamen utilizing them could make themselves less vulnerable while under attack. Lethal defenses of merchant vessels should be avoided if possible, due to the possibility of escalation of violence during pirate attacks, as well as the various liability and oversight issues that could arise. In any case, nonlethal or lethal merchant vessel defenses address only the symptoms of instability on land.

To alleviate the bureaucratic and financial burdens on regional states willing to accept suspected pirates for trial, the United States and its partners should support a regional ship-rider program. In addition, international stakeholders should emphasize building the capacity of the judicial systems in the region in order to bolster legal deterrents to those who wish to foment instability in Somalia or elsewhere in the region. Above all, a reliable process by which countries apprehending pirates at sea can deliver suspects for trial and incarceration is essential. However, addressing legal impediments to combating piracy fails to address the conditions from which piracy emerged.

Multinational naval patrols should be continued, sensitive to seasonal fluxes in pirate attacks and acknowledging the limited ability of these warships to protect the tens of thousands of merchant vessels that transit the region on a yearly basis. However, such a method should recognize the limitations of a solely sea-based approach to countering piracy, as it targets the symptoms of instability and is no substitute for enhanced regional maritime capacity and law and order on land in Somalia. Multinational naval patrols may also be unsustainable over the long term.

However ill advised and improbable it may be in practice, a credible threat of kinetic military action on land could encourage pirates to reduce their attacks to a pre-2008 level that might not draw the attention of the international community. If actually put in practice, a U.S. attack on Somali pirate bases or an outright invasion might address some of the conditions that allowed piracy to emerge, but at the cost of increasing the level of intensity of the insurgency in Somalia as a whole. Therefore, this method should be avoided in spite of its potential to address the security and governance gap in Somalia.

Building local and regional maritime security–sector capacity is an important area for international engagement, since regional states must eventually bear some of the burden of maritime security in their region under any long-term counterpiracy strategy. Specifically, East African and Persian Gulf states should continue regional maritime security cooperation supported by international partners. The goal would be to harmonize regional maritime coordination efforts by sharing information regarding suspicious activity and conducting joint patrols with the support of nonregional partners. Like the multinational naval patrols, this method is limited by the fact that it only targets the symptoms of instability. However, it is possible that over the long term increased maritime security in the Horn of Africa could lessen seaborne threats that have contributed to lawlessness on land in Somalia, such as illegal fishing and arms trafficking.

Although the methods above can contribute greatly to the eventual success of the counterpiracy campaign, a truly comprehensive and sustainable counterpiracy strategy in the Gulf of Aden and Indian Ocean must address the security

vacuum on land in Somalia that has created the conditions that allow piracy to thrive. While UN boots on the ground are increasingly unlikely, the international community should continue to support the Djibouti Agreement, although it is arguably handicapped by its lack of inclusivity.[86] As an alternative, the international community could encourage a new round of peace talks, advocating maximum practical participation, encouraging clans and factions to buy in to a peaceful Somalia where law and order thrive. More inclusive peace talks may in fact be a prerequisite to any reduction in violence in Somalia, and they could provide the space necessary to address the governance vacuum.

Flaws notwithstanding, it is crucial that the international community support initiatives such as AMISOM with a strong and sustained commitment to provide financing, training, and equipment, since it is an attempt to create and sustain an African peacekeeping force whose mere existence is at the very least a positive development for African regional security. Stronger international support may make African countries that have pledged troops but have not sent them more willing to do so. Although peacekeeping is by no means nation building, the presence of a sufficiently trained and equipped peacekeeping force could contribute to an environment amenable to political, social, and economic development in Somalia.

In any long-term diplomatic or military engagement with Somalia, the international community will have to decide how best to deal with nonstate entities in Somalia. It should be open to abandoning the notion of a unified Somali state in order to accommodate entities like Somaliland, which declared independence from Somalia in 1991, and Puntland, which declared its autonomy in 1998. Somalia as it stands now does not act like a state; for the international community to engage with Somalia as it would with a state presents more complexities than can be managed in the current security and humanitarian situation. In particular, the United States and its international partners should weigh the costs and benefits of dealing directly, on a case-by-case basis, with legitimate and effective local authorities within Somalia, regardless of their affiliation or lack thereof with the Somali government. In the long run, these alternative identities and centers of authority may prove capable of providing law and order in Somalia in a way that a central government has been unable to do for two decades.[87] Selecting local authorities for engagement could, admittedly, intensify competition among them and undermine the authority of the TFG; nonetheless, an adept and culturally sensitive engagement strategy may reveal that state and nonstate authorities are not necessarily mutually exclusive.

As a precaution, any support the United States gives to Somalia should not be too overt, as it could backfire, empowering hard-liners and reversing gains in governance and security. On one hand, Somali president Sheikh Sharif Ahmed

needs external support to maintain the TFG's current position; on the other hand, he needs broad support within Somalia if his government is to be successful. If he relies too much on the former, it will compromise his success with the latter.[88]

In the end, by addressing the security and governance vacuum in Somalia by building local and regional capacity through a long-term multinational commitment, the United States and international partners may be able to assist in eliminating insecurity on land and the resultant insecurity at sea that has manifested itself in the recent spike in pirate attacks. The key to success in countering piracy off the coast of Somalia lies in conceptually linking the positive elements of current sea-based counterpiracy methods with approaches designed to remedy the underlying instability ashore that produced piracy in the first place.

NOTES

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1. This article uses the UNCLOS definition of piracy, which states (article 101), "Piracy consists of any of the following acts: (a) any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed: (i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft; (ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State; (b) any act of voluntary participation in the operation of a ship or of an aircraft with knowledge of facts making it a pirate ship or aircraft; (c) any act of inciting or of intentionally facilitating an act described in subparagraph (a) or (b)."
2. Gary E. Weir, "Fish, Family, and Profit: Piracy and the Horn of Africa," *Naval War College Review* 62, no. 3 (Summer 2009), pp. 15–29.
3. Ken Menkhaus, "Dangerous Waters," *Survival* 51, no. 1 (February–March 2009), pp. 21–25. See also Clive Schoefield, "The Other Pirates of the Horn of Africa," *RSIS Commentaries,* 5 January 2009, available at www.rsis.edu.sg/.
4. Johann Hari, "You Are Being Lied to about Pirates," *Huffington Post,* 12 April 2009, www.huffingtonpost.com/.
5. Clive Schoefield, "Plaguing the Waves: Rising Piracy Threat off the Horn of Africa," *Jane's Intelligence Review,* 1 July 2007, www.janes.com. See also Roger Middleton, "Piracy in Somalia: Threatening Global Trade, Feeding Local Wars," *Chatham House Briefing Paper* (October 2008), available at www.chathamhouse.org.uk/. See also Scott Baladauf, "Piracy Raises Pressure for New International Tack on Somalia," *Christian Science Monitor,* 6 January 2009, available at www.csmonitor.com.
6. Martin Murphy, "High Resolution: Trying to Tame Somalia's Piracy Problem," *Jane's Intelligence Review,* 17 July 2008, available at www.janes.com.
7. ICC—International Maritime Bureau [hereafter IMB], "IMB Reports Unprecedented Rise in Maritime Hijackings," *ICC Commercial Crime Services,* 16 January 2009, www.icc-ccs.org/.
8. IMB, *Piracy and Armed Robbery against Ships Report: Report for the Period 1 January–31 December 2009* (London: January 2010).
9. Abdiqani Hassan, "Somali Pirates 'Smell Money' as Good Times Return," Reuters UK, 10 April 2009, available at uk.reuters.com/. See also "Pirates Expand into Oman's Waters," *BBC News,* 12 June 2009, news.bbc.co.uk/.
10. "Memorandum from the President: United States Maritime Security (Piracy) Policy," 14 June 2007, available at www.marad.dot.gov/ as annex 1 of National Security Council,

Countering Piracy off the Horn of Africa: Partnership and Action Plan (Washington, D.C.: December 2008). See also The National Strategy for Maritime Security (Washington, D.C.: September 2005), available at www.dhs.gov/.

11. National Security Council, *Countering Piracy off the Horn of Africa.*

12. The U.S.-flag containership *Maersk Alabama* was hijacked on 8 April 2009 approximately three hundred miles off the coast of Somalia, while en route to Mombasa, Kenya. Following a scuffle with the pirates, *Alabama*'s crew of twenty U.S. nationals was able to retake the ship; the master, Richard Phillips, who had surrendered to ensure the safety of his crew, was taken hostage aboard a twenty-eight-foot lifeboat. The USS *Bainbridge* (DDG 96, a guided-missile destroyer), USS *Boxer* (LHD 4, an amphibious assault ship), and USS *Halyburton* (FFG 40, a guided-missile frigate) were dispatched to the scene. The standoff was resolved on 12 April, when three of the four pirates were killed by SEAL snipers on board *Bainbridge* when it was determined that Captain Phillips was in imminent danger. The fourth pirate, who had been on board *Bainbridge* to receive medical treatment and negotiate the master's ransom, was taken into custody and at this writing awaits trial in New York. Although short-lived, the hijacking of *Alabama* was the first successful pirate seizure of a U.S.-flag ship in almost two hundred years.

13. The leaders of Puntland, a region in northeast Somalia, declared it an autonomous state in 1998 as a result of the collapse of the central government in Somalia in 1991. In the spring of 2009, a UN Security Council report named Puntland as home to several pirate bases and accused the government that had been in power at the end of 2008 of complicity in pirate activity. Ban Ki-moon, *Report of the Secretary-General Pursuant to Security Council Resolution 1846 (2008)* (New York: UN Security Council, 16 March 2009), available at daccessdds.un.org/doc/.

14. "Announcement of Counter-piracy Initiatives: Hillary Rodham Clinton, Secretary of State, Washington, DC, April 15, 2009," *U.S. Department of State: Diplomacy in Action,* www.state.gov/.

15. IMB, *Piracy and Armed Robbery against Ships Report.*

16. Peter Chalk, *Maritime Piracy: Reasons, Dangers and Solutions—Testimony Presented before the House Transportation and Infrastructure Committee, Subcommittee on Coast Guard and Maritime Transportation, February 4, 2009,* RAND Corporation Testimony, CT-317, February 2009, www.rand.org/. See also Martin N. Murphy, *Contemporary Piracy and Maritime Terrorism,* Adelphi Paper 388 (London: International Institute for Strategic Studies, 2007).

17. "The Long Way Around," *Lloyd's List,* 26 November 2008. See also "Piracy Could Add $400m to Owners' Insurance Cover Costs," *Lloyd's List,* 21 November 2008; Murphy, *Contemporary Piracy and Maritime Terrorism;* U.S. Transportation Dept., *Economic Impact of Piracy in the Gulf of Aden on Global Trade* (Washington, D.C.: Maritime Administration, 2009), available at www.marad.dot.gov/; and John Knott, "Somalia: Clan Rivalry, Military Conflict, and the Financial and Human Cost of Piracy," Mondaq.com, 17 March 2009.

18. Murphy, *Contemporary Piracy and Maritime Terrorism.* See also Robert Wright, "Somali Pirates Release Captured Ship," *Financial Times,* 19 January 2010, available at www.ft.com.

19. House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, *Summary of Subject Matter: International Piracy on the High Seas,* 111th Cong., 1st sess., 4 February 2009, available at transportation.house.gov/.

20. "Who Do Pirates Call to Get Their Cash?" *BBC News,* 29 January 2009, news.bbc.co.uk/.

21. Analysts attribute the drop in canal traffic and revenue to the economic crisis but warn that it has the potential to be affected by piracy. "Suez Canal Revenue down 26%," AMEInfo.com, 24 March 2009. See also "Suez Canal Revenue Drops," Agence France-Presse, 23 March 2009, available at www.straitstimes.com/.

22. United Nations, "Countries: Somalia," *United Nations World Food Programme,* www.wfp.org/countries/somalia.

23. Bruno Schiemsky, "Piracy's Rising Tide: Somali Piracy Develops and Diversifies," *Jane's Intelligence Review,* 16 January 2009, www.janes.com. See also Tim Sullivan, "A Wicked Brew: Piracy and Islamism in the Horn of

Africa," *Small Wars Journal,* 29 November 2008, smallwarsjournal.com/. See also "The Lawless Horn," *Economist,* 20 November 2008.

24. J. Peter Pham, "'Strategic Interests': Pondering Somali Piracy," *World Defense Review,* 23 April 2009, worlddefensereview.com/.

25. According to a UN report released in December 2008, revenues gained from the payment of ransoms are distributed as follows: 30 percent for sponsors, 20 percent for financiers, 30 percent for the maritime militia (pirates involved in the actual hijacking), 10 percent for the ground militia (controlling the territory where the pirates are based), and 10 percent for local community, including elders and local officials. In addition, the families of pirates killed during an operation are paid compensation. Dumisani Shadrack Kumalo, "Letter dated 10 December 2008 from the Chairman of the Security Council Committee Established Pursuant to Resolution 751 (1992) Concerning Somalia Addressed to the President of the Security Council," *United Nations Security Council,* 10 December 2008, available at www.securitycouncilreport.org/.

26. Xan Rice and Abdiqani Hassan, "Life Is Sweet in the Piracy Capital of the World," *Guardian,* 19 November 2008, available at www.guardian.co.uk/.

27. Tabassum Zakaria, "US Chase of Somali Pirate Assets Faces Rough Seas," Reuters, 21 April 2009, www.reuters.com/.

28. It costs investors approximately six thousand dollars to send a team of pirates out searching for ships to hijack. This money goes toward the purchase of food, ammunition, and fuel and the rental of rocket-propelled-grenade launchers and speedboats. Rob Walker, "Inside Story of a Somali Pirate Attack," *BBC News,* 4 June 2009, news.bbc.co.uk/. See also Antonio Maria Costa, "Fighting Somali Piracy on Land, Not at Sea," Globeandmail.com, 22 April 2009.

29. Compared to an estimated average annual income of $650 per year, pirates may be able to earn ten thousand dollars per raid, creating a high potential for reward in a situation with very few risks or punishments. Roger Middleton, "Piracy a Symptom of a Bigger Problem," *BBC News,* 15 April 2009, news.bbc.co.uk/.

30. "Contact Group on Piracy off the Coast of Somalia: Bureau of Political-Military Affairs Fact Sheet, January 14, 2009," *U.S. Department of State: Diplomacy in Action,* www.state.gov/. Working Group 1 is led by the United Kingdom, with the support of the International Maritime Organization, and is addressing activities related to military and operational coordination, information sharing, capacity building, and the establishment of a regional coordination center. Working Group 2 is led by Denmark, with the support of the United Nations Office of Drugs and Crime (UNODC), and is addressing the judicial aspects of piracy and assisting regional states in building the legal capacity to prosecute pirates. Working Group 4, led by Egypt, is seeking to improve diplomatic and public information efforts on all aspects of piracy.

31. Oil Companies International Marine Forum [hereafter OCIMF], *Piracy: The East Africa/Somalia Situation: Practical Measures to Avoid, Deter, or Delay Piracy Attacks* (London: 2009), available at www.marad.dot.gov/.

32. Bureau of Public Affairs, Office of the Spokesman, "The Bahamas, the Republic of Liberia, the Republic of Marshall Islands and the Republic of Panama Announce Their Commitment to Best Practices to Avoid, Deter or Delay Acts of Piracy," 29 May 2009, *U.S. Department of State: Diplomacy in Action,* www.state.gov/.

33. Patrick Lennox, "Contemporary Piracy off the Coast of Africa," *Canadian Defence and Foreign Affairs Institute* (December 2008). See also OCIMF, *Piracy.*

34. Brian Murphy, "US Admiral: Pirates Facing Tougher Merchant Ships," Associated Press, 21 August 2009, available at news.yahoo.com/.

35. H. Amdt. 269, available at www.govtrack.us/. See also Rebekah Gordon, "Amendment Mandates Military on US Cargo Ships Facing Piracy Risk," *Inside the Navy,* 29 June 2009.

36. H.R. 2984, available at www.govtrack.us/. See also Susan Gvozdas, "House Bill Would Give Immunity to Mariners," *Navy Times,* 23 June 2009.

37. "Fighting Off the Somali Pirates," *BBC News,* 16 April 2009, news.bbc.co.uk/.

38. Mark Bernstein, "How Do We Make the Sea Lanes Safe?" *World Trade Magazine,* 11 June 2009, available at www.worldtrademag.com/.

39. Mark Mazzetti, "Standoff with Somali Pirates Shows US Power Has Limits," *New York Times,* 10 April 2009.

40. In the case of maritime piracy, not only suspected pirates but witnesses and victims of pirate attacks might be PUCs. See James Kraska and Brian Wilson, "Fighting Piracy," *Armed Forces Journal* (February 2009).

41. The UN Security Council resolutions (UNSCRs) passed in 2008 and 2009 that concern piracy are UNSCRs 1816 (June 2008), 1838 (October 2008), 1844 (November 2008), 1846 (December 2008, renewing UNSCR 1816), 1851 (December 2008), and 1897 (December 2009, renewing 1846 and 1851).

42. Sonia Phalnikar, "Governments Struggle to Combat Piracy with Legal Measures," *Deutsche Welle,* 26 August 2009, available at www.dw-world.de/.

43. Kraska and Wilson, "Fighting Piracy."

44. Costa, "Fighting Somali Piracy on Land, Not at Sea."

45. U.S. Coast Guard, *Statement of RADM William Baumgartner on International Piracy on the High Seas before the Subcommittee on Coast Guard & Maritime Transportation, Committee on Transportation & Infrastructure, U.S. House of Representatives, February 4, 2009,* available at www.marad.dot.gov/.

46. This policy is currently in force in the Caribbean to facilitate criminal and legal preparations for the trials of drug traffickers. Costa, "Fighting Somali Piracy on Land, Not at Sea."

47. At the May 2009 meeting of the Contact Group on Piracy off the Coast of Somalia, members endorsed the creation of an International Trust Fund to defray expenses of prosecuting suspected pirates. Bureau of Public Affairs, Office of the Spokesman, "Third Plenary Meeting of the Contact Group on Piracy off the Coast of Somalia," 29 May 2009, *U.S. Department of State: Diplomacy in Action,* www.state.gov/. See also Adam Gonn, "Kenya Mulls Hosting Piracy Tribunal," Allheadlinenews.com, 20 April 2009.

48. Alisha Ryu, "Paris-Based Group Says Accused Somali Pirates Denied Rights," *Voice of America,* 27 August 2009, www.voanews.com/.

49. James Butty, "Kenyan Foreign Minister Shed Light on US-Kenya Piracy Agreement," *Voice of America,* 28 January 2009, www.voanews.com/.

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51. Nathan Schaeffer, "Deterring Piracy at Sea," *All Hands,* no. 1103 (February 2009), pp. 18–23.

52. Nathan Schaeffer, "Combined Maritime Forces Works with International Navies to Counter Piracy," Navy.mil, 28 May 2009. See also Lisa M. Novak, "Naval Officials Discuss Anti-piracy Tactics," *Stars and Stripes,* 28 May 2009; and Scott, "Policing the Maritime Beat."

53. The EU's Operation ATALANTA, commenced in December 2008, is focused on deterring, preventing, and repressing acts of piracy and armed robbery off the coast of Somalia by escorting UN WFP vessels and protecting other vulnerable vessels transiting these waters. NATO's OCEAN SHIELD was begun in August 2009 to build the maritime capacities of regional states to combat piracy. OCEAN SHIELD will also continue the mission of Operation ALLIED PROTECTOR, launched in March 2009, to deter, disrupt, and defend against pirate activity off the coast of Somalia. A previous operation, ALLIED PROVIDER, lasted from October to December 2008 and escorted UN WFP vessels off the coast of Somalia.

54. U.S. Coast Guard, *Statement of RADM Brian M. Salerno, Assistant Commandant for Marine*

Safety, Security, and Stewardship, on Piracy on the High Seas: Protecting Our Ships, Crews, and Passengers, before the Subcommittee on Surface Transportation and Merchant Marine Infrastructure, Safety, and Security, Committee on Commerce, U.S. Senate, May 5, 2009, available at www.marad.dot.gov/.

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59. IMB, *Piracy and Armed Robbery against Ships Report.*

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61. Andrea Shalal-Esa, "Fight against Pirates Also Needed Ashore: US Navy," Reuters, 4 May 2009, available at www.reuters.com/.

62. Ibid.

63. Jacquelyn Porth, "East Africa: Piracy off the Horn of Africa Threatens Relief Efforts, Trade," allAfrica.com, 31 October 2008.

64. Bernstein, "How Do We Make the Sea Lanes Safe?" See also Donna Miles, "Admiral Cites Partnership, Commitment as Keys to Piracy Crackdown," Navy.mil, 13 May 2009.

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66. Bernstein, "How Do We Make the Sea Lanes Safe?"

67. Zakaria, "US Chase of Somali Pirate Assets Faces Rough Seas."

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69. Andrew Gray and Sue Pleming, "US Said Unlikely to Attack Somali Pirate Bases," Reuters, 20 April 2009, available at www.reuters.com/. See also Baladauf, "Piracy Raises Pressure for New International Tack on Somalia."

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71. "Somali Anti-pirate Coastguard Bid," *BBC News,* 18 May 2009, news.bbc.co.uk/.

72. Alisha Ryu, "Analyst Skeptical New Somali Navy Can Fight Piracy," *Voice of America,* 18 June 2009, www.voanews.com/.

73. Lars Bangert Struwe, *For a Greater Horn of Africa Sea Patrol: A Strategic Analysis of the Somali Pirate Challenge* (Copenhagen: Danish Institute for Military Studies, March 2009), available at www.difms.dk/. See also James Jay Carafano, Richard Weitz, and Martin Edwin Andersen, *Maritime Security: Fighting Piracy in the Gulf of Aden and Beyond,* Heritage Foundation Special Report (Washington, D.C.: 24 June 2009), available at www.heritage.org/.

74. J. Peter Pham, "'Strategic Interests': A Sustainable Response to the Scourge of Somali Piracy," *World Defense Review,* 26 February 2009, worlddefensereview.com/. See also Peter Chalk, "Maritime Violence, Crime and Insecurity: Nigeria—a Case Study," *Journal of International Peace Operations* 4, no. 3 (November–December 2008), pp. 17–19.

75. J. Peter Pham, "'Strategic Interests': Despite Progress, Somali Pirate Threat Persists—and May Grow Larger," *World Defense Review,* 19 February 2009, worlddefensereview.com/.

76. "Arab Mission to Combat Piracy off Somalia," Bernama.com, 30 June 2009. See also Paul Handley, "All-Arab Red Sea Anti-piracy Force Proposed in Riyadh," Agence France-Presse, 29 June 2009, available at www.google.com/.

77. "Somali Anti-pirate Coastguard Bid." See also Helmoed-Römer Heitman, "Seychelles Contributes to Anti-piracy Efforts," *Jane's Defence Weekly,* 6 May 2009, www.janes.com.

78. Originally an Italian colony until 1941, Eritrea became federated with and was annexed by Ethiopia, in 1950 and 1962, respectively. Eritrea fought for independence for over

thirty years, expelling Ethiopian forces from the majority of its territory by 1991. In a UN-sponsored referendum held in 1993, Eritrea voted for independence. The two countries returned to war between 1998 and 2000 as the result of a border conflict concerning the city of Badme. Eritrea has been accused of arming and supporting rebel movements throughout the Horn of Africa, particularly in Somalia and Ethiopia. Following the Ethiopian invasion of Somalia in 2006, Eritrea hosted exiled members of the ICU and its successor organization, the Alliance for the Re-liberation of Somalia (ARS)—like Sheikh Hassan Dahir Aweys, who had suspected terrorist connections. This worsened already strained relations between Eritrea and the United States. Peter Clottey, "Somalia Has Proof of Eritrea's Meddling in Internal Affairs, Says Minister," *Voice of America,* 5 May 2009, www.voanews.com/.

The Ogaden is an eastern region of Ethiopia that borders Djibouti, Somalia, and Kenya; it has a predominantly Muslim and ethnic Somali population. Between 1977 and 1978 Ethiopia and Somalia went to war as a result of General Mohamed Siad Barre's desire to incorporate ethnic Somalis into a "Greater Somalia" encompassing Somalia, Djibouti, the North Eastern Province of Kenya, and the Ogaden. It is believed that the ICU's stated aim to form a "Greater Somalia" during the short period in which it ruled Somalia was one of the reasons for the Ethiopian invasion of the country in late 2006. Ethiopia withdrew its troops in December 2008 but has acknowledged that it continues reconnaissance missions in Somalia and reserves the right to intervene again if its interests are directly threatened. A second Ethiopian invasion would likely exacerbate the security and humanitarian situation in Somalia and should thus be avoided if at all possible. "Ethiopia Admits Somalia Presence," *BBC News,* 4 June 2009, news.bbc.co.uk/.

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81. African Union, *Communiqué of the 69th Meeting of the Peace and Security Council of the African Union* (Addis Ababa: African Union Peace and Security Council, 19 January 2007), available at www.iss.co.za/.

82. UN Security Council Resolution 1772, 20 August 2007, available at daccessdds.un.org/.

83. UN Security Council Resolution 1910, 28 January 2010, available at www.un.org/.

84. Paul D. Williams, "AMISOM's Five Challenges," *Africa Policy Forum,* 12 May 2009, forums.csis.org/.

85. Ibid.

86. From 31 May to 9 June 2008, the UN mediated a conference between the TFG and the ARS (the ICU's successor organization) in Djibouti. The eleven-point Djibouti Agreement, signed 9 June 2008, called for a ninety-day cease-fire, set a withdrawal timetable for the Ethiopian troops within 120 days of the signing of the agreement, and requested that the UN authorize and deploy an international stabilization force from countries that were friends of Somalia, excluding neighboring states. However, ARS chairman and current Somali president Sheikh Sharif Ahmed had negotiated it without first securing the withdrawal of Ethiopian troops from Somalia; accordingly, the hard-line Islamist Sheikh Hassan Dahir Aweys and like-minded supporters rejected the agreement and continue to be part of the insurgency in Somalia today. The AU and all states in the region except for Eritrea have endorsed the agreement. See Alisha Ryu, "Somali Opposition Splits amid Conflict," *Voice of America,* 29 May 2009, www.voanews.com/. Also see U.S. State Dept., "Background Briefing on US Assistance to the Somalia Transitional Federal Government: Background Briefing by a Senior Department Official, June 26, 2009," *U.S. Department of State: Diplomacy in Action,* www.state.gov/.

87. Kraska "Fresh Thinking for an Old Problem."

88. Alisha Ryu, "Somalia Stability Challenged by Complex and Shifting Politics," *Voice of America,* 29 April 2009, www.voanews.com/.

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CHINA'S OIL SECURITY PIPE DREAM

The Reality, and Strategic Consequences, of Seaborne Imports

Andrew S. Erickson and Gabriel B. Collins

Between now and 2025—a widely used strategic planning horizon—the world's major economies will likely still depend to a large degree on traditional energy sources. Oil and liquefied natural gas (LNG), despite their economic and strategic differences, are the two with inherent naval significance, as they must be transported by sea to the extent that domestic supplies or overland pipelines are insufficient.[1] Indeed, maritime transport is properly conceived as a default, as it is almost always significantly cheaper than any overland alternatives, many of which are simply impractical in any case. The recent global recession has further reduced tanker rates. Private-sector analysts have produced detailed forecasts of supply and demand for these two critical commodities. But no researchers have yet produced a detailed study of the strategic and naval implications of Chinese energy access.[2] The market focus of energy intelligence firms and the lack of security and technical information informing journalists in the energy field have so far precluded analysis of the issue.

This gap must be filled. The National Intelligence Council's *Global Trends 2025* report "projects a still-preeminent U.S. joined by fast developing powers, notably India and China, atop a multipolar international system" that "will be subject to an increased likelihood of conflict over scarce resources"—one of them being energy.[3] Russia will have great influence as an energy supplier. "No other countries are projected to rise to the level of China, India, or Russia, and none is likely to match their individual global clout."[4] More specifically, "Maritime security concerns are providing a rationale for naval buildups and modernization efforts, such as China's and India's development of blue-water naval capabilities."[5]

Useful insights into these potential trends can be gained by considering the physical and economic realities of oil transshipment. This article assesses the relative dependence of China (as a consumer) on seaborne oil flows between now and 2025. China's oil security concerns will help shape its military and policy priorities fundamentally, with significant implications for the U.S. Navy in coming years. For the present, it underscores a question of fundamental importance concerning China's strategic orientation: To what extent will China seek to transform itself from a continental to a continental-maritime power?[6]

Chinese oil demand, growing rapidly, has reached 8.5 million barrels* per day (mbpd), even amid the global recession.[7] China became a net oil importer in 1993 and likely became a net gasoline importer by the end of 2009. While still a very significant oil producer, China is now the world's second-largest oil user. It now imports half of its crude oil, with imports reaching a record 4.6 million bpd in July 2009.[8] Seaborne imports, which overland pipelines will not reduce, constitute more than 80 percent of this total.[9] At present, therefore, 40 percent of China's oil comes by sea.

Chinese security analysts and policy makers worry about their nation's "excessive" reliance on seaborne oil shipments. Many believe that by investing in pipelines to deliver oil from neighboring oil producers like Russia and Kazakhstan and building additional lines to "bypass" the Malacca Strait, China can protect its oil imports from possible interdiction during a conflict.

A robust internal debate is being waged within China at multiple levels and across a number of disciplines regarding how to ensure access to oil supplies. At stake is the extent to which China should cooperate with international economic institutions versus seeking unilateral military solutions;[10] should develop as a maritime versus continental power; and should focus on defending against state, as opposed to nonstate, actors.[11] Despite this diversity of opinion, a wide variety of influential Chinese experts, including scholars, policy analysts, and members of the military, believe that the United States can sever China's seaborne energy supplies at will and in a crisis might well choose to do so.[12] It is widely claimed, for instance, that "whoever controls the Strait of Malacca effectively grips China's strategic energy passage, and can threaten China's energy security at any time."[13]

Such views are widely cited to justify pipeline construction, which is proceeding rapidly. China already has fifty thousand kilometers of oil and gas pipelines and will nearly double the amount, to ninety thousand, during the Twelfth Five-Year Plan (2011–15).[14]

* There are 7.3 barrels of oil in a ton.

Yet as this analysis will demonstrate, China's overland oil supply plans may largely be a "pipe dream," driven by a combination of a misunderstanding of global oil market mechanisms, incomplete assessment of security issues, and the lobbying by sectoral and local commercial and political interests of a massively overtaxed national energy policy-making apparatus. Some projects—such as the line from Russia that is now under construction and an existing line from Kazakhstan—are indeed economically viable overland projects that will bring at least limited diversity to China's oil supplies. Others, however, like the proposed lines through Burma and Pakistan, make much less economic and security sense.

In the end, pipelines are not likely to increase Chinese oil import security in quantitative terms, because the additional volumes they bring in will be overwhelmed by China's demand growth; the country's net reliance on seaborne oil imports will grow over time, pipelines notwithstanding. If we estimate Chinese oil-import-demand growth conservatively at an average of 2.5 percent annually over the next five years, Beijing's imports will still increase by a total of around 650,000 barrels a day—more than the combined volume that the pipelines from Russia and Kazakhstan will likely be able to bring in by 2013.[15] Of that total, the 300,000 bpd from Russia will not be "new" overland supplies but, rather, consist primarily of a transfer from rail to pipe as the crude volumes previously carried into China by train are moved into the pipeline instead. The proposed Burma–China and Pakistan–China lines are simply "shortcut" routes, not true overland supply alternatives; oil will still have to be carried by sea in tankers to the pipelines' starting points.

A total figure for these two sources, Russia and Kazakhstan, of around 500,000 bpd may seem low, but it reflects the reality that China's neighbors have limited capacity to offset its seaborne oil imports. Their reserves are limited in key potential supply areas (e.g., eastern Siberia), and politics further complicate the picture. Kazakhstan, for its part, is pursuing a three-vector oil export policy. It entails shipping oil through the Caspian Pipeline Consortium line to the Russian Black Sea port of Novorossiysk; to China through the Atasu–Alashankou line; and, soon, through the $1.5 billion Kazakhstan Caspian Pipeline System to a port on the Caspian Sea, from which it will be carried by tanker to Azerbaijan, there to enter the Baku–Tbilisi–Ceyhan pipeline.[16] Russian sources say the third route may ultimately be able to pump up to fifty-six million tons a year of oil.[17]

Russia, meanwhile, may prioritize oil supplies to the East Siberia–Pacific pipeline, feeding the port of Kozmino, on the Sea of Japan near Nakhodka; from there it can be exported to Japan, South Korea, China, the United States, and other Pacific Basin consumers, not China alone. A spur pipeline from Russia to

China is now under construction and is scheduled to enter service in the second half of 2010. Detailed analysis of the project is included later in the study.

Pipelines are more vulnerable to sabotage and military interdiction than seaborne shipping is. Projects (like the Burma–China pipeline) designed to help seaborne shipments bypass choke points are expensive, can be blockaded, and are themselves vulnerable to physical attack by nonstate actors or other parties. Seaborne shipping, by contrast, is very flexible and can be routed around disruptions. For this reason, pipeline plans predicated on the idea that bypassing the Strait of Malacca increases oil security are fundamentally flawed. Even if Malacca were completely sealed off by blockade or accident, tankers could be diverted through the Sunda, Lombok, or other passages with some disruption in deliveries and at an additional cost of as little as one or two dollars per barrel.[18] Some Chinese analysts now share this conclusion, one noting that "SLOC [sea line of communication] security is much more important than pipeline transport lines."[19]

Finally, as figure 1 demonstrates, pipelines are far more expensive than tankers in terms of what must be spent to move a given volume of oil a given distance.[20] Certain pipelines—such as the Pakistan, and possibly the Burma, projects—will likely require substantial subsidies if they are to compete with seaborne imports. Much of the cost of supporting such uneconomical projects, which are driven more by politics than profits, will fall on the Chinese government, which already faces substantial energy-subsidy costs as well as the demands of its four-trillion-RMB stimulus package.

The first portion of the analysis will examine operational and prospective pipelines oriented toward China. The projects are arranged chronologically in the order that they have, will, or might become operational. At present, the Kazakhstan–China pipeline is operating at partial capacity, a Russia–China line could become operational by late 2010 (and is likely to be in commercial operation by 2011), the Burma–China pipeline is now under construction, and a China–Pakistan pipeline remains entirely aspirational.[21]

FIGURE 1
SAMPLE OIL TRANSPORT COSTS TO CHINA

Mode	Route	Distance (km)	Cost (US$/bbl)	Cost (US$/bbl/1000 km)
Tanker[a]	Ras Tanura–Ningbo	7000	1.25	0.18
Pipeline[b]	Angarsk–Daqing	3200	2.41	0.75
Train[c]	Angarsk–Manzhouli	1000	7.19	7.19

Notes:
a. VLCC at $150k/day charter, 2 million bpd cargo.
b. Transneft tariff of 15.41 rubles/ton/100 km.
c. Based on weighted average of Russian Railways' oil tariffs to Zabaikalsk and Naushki.

The second portion of the study will examine Chinese views of how pipelines might enhance China's oil security and assess the potential for, and utility and disadvantages of, a pipeline-centric oil-security strategy. The final, and concluding, section will suggest how China might enhance its energy security at lower financial and diplomatic cost.

In the outline that follows of current and possible pipeline projects, fear that nonstate actors or foreign navies could interdict oil shipments to China will be prominent as a factor that impels the national government to support overland supply projects. Yet it should be noted at the outset that national oil companies may be playing on that fear, the sense of oil insecurity among high-level decision makers, in order to obtain further state support. Provincial and local officials are likely doing so to secure projects that could create substantial local investment and job growth.

Indeed, if one averages labor-demand numbers for sample refinery expansion and newbuild projects in the West and the developing world, a 200,000 bpd refinery, such as that which may be built near Kunming, could create ten thousand or more construction and engineering jobs while it is being built and at least several hundred permanent positions to run the plant thereafter.[22] Building the pipeline itself and associated storage and pumping facilities would create additional temporary and permanent jobs.

Understanding the real benefits that pipeline and associated refinery construction would bring local governments makes it imperative to remember in what follows that local interests and overall Chinese national energy-security interests must be kept separate. What is beneficial at the local level, or to a certain subset of corporate actors, may not always be the most effective policy for addressing national strategic concerns. In this sense, significant portions of China's push for pipelines mirror the "Going Out" oil security strategy, in which the state oil companies cultivated fears of oil insecurity in Beijing and then turned around and wrapped themselves in the flag as they sought overseas oil projects. These projects have boosted their incomes and reserves but have done little to enhance China's oil security on the national level; these firms have even damaged China's image abroad, through their dealings with Sudan and other pariah states.[23]

KAZAKHSTAN–CHINA PIPELINE

The Kazakhstan–China pipeline is currently China's only operational overland oil pipeline project. China previously imported Kazakh crude by rail through the entry port of Alashankou, in Xinjiang. To move larger volumes and to lower shipping prices, however, both sides desired a pipeline. In September 1997, the

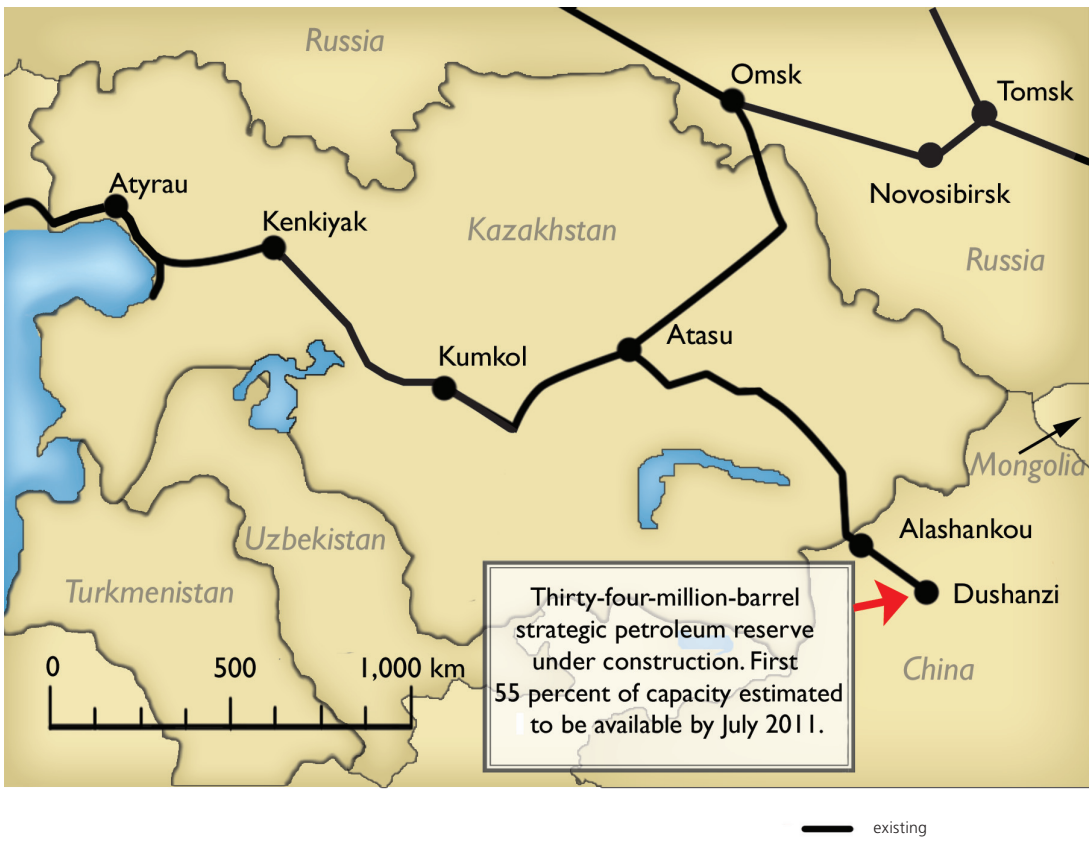
Chinese and Kazakh governments signed the General Agreement on the Project of Oil Deposits Development and Pipeline Construction.[24] The initial stage of the line was built from Kenkiyak to Atyrau during 2002–2004, the second stage during 2004–2006 from Atyrau to the Chinese border at Alashankou.[25] The China National Petroleum Corporation (CNPC) funded the construction cost of $806 million for the thousand-kilometer leg from Atasu to Alashankou, as well as the cost of a 252 km extension from Alashankou to the refinery at Dushanzi, also in Xinjiang.[26]

The pipeline is operated by a joint stock company called MunaiTas North-West Pipeline Company CJSC, which is backed by China National Petroleum Corporation and KazMunaiGaz. Its current capacity is approximately 200,000 bpd. In 2008, however, China imported an average of only 115,000 bpd of crude oil from Kazakhstan by pipeline and rail.[27] In December 2007, the pipeline carried an average of 102,600 bpd—only about half of its total capacity—due to pricing disputes and problems with supply availability that created gaps, only partially filled with Russian crude from western Siberia. The line has carried Kazakh Kumkol crude as well as crudes from Russia.[28] This situation is due to the fact that current Kazakh production does not yet completely fill the line and also because lighter, less waxy Russian oils are blended with waxy Kazakh crudes during the winter to prevent them from solidifying and blocking the line.

Figure 2 shows the current pipeline and future planned additions. Now that the segment from Kenkiyak to Kumkol is completed, Kazakhstan's Caspian Sea production (in the Tengiz and Kashagan fields) can enter a pipeline network reaching deep into China. In August 2007, CNPC opened a 400,000-bpd-capacity crude oil pipeline from Shanshan in Xinjiang to the refining center at Lanzhou, in Gansu Province.[29] This line, and a parallel oil products pipeline, will allow crude and refined products from Xinjiang to be shipped to Lanzhou and then into CNPC's existing pipeline network serving central and southwestern China. This will permit Kazakh crude to penetrate deep into China, because as crude oil and products from the Dushanzi refinery can be shipped farther east, boosting oil supplies to the inland regions that will be a focus of Beijing's development program, regional economic disparities will be reduced. The Kazakhstan–China pipeline will also be integrated with a new strategic petroleum reserve site under construction near Ürümqi, which will store fifty-one million barrels of crude once completed.[30] The line could reach a maximum throughput capacity of 400,000 bpd in 2011, if its final stage, from Kenkiyak to Kumkol, reaches its full capacity by that time.

While this pipeline project originated in part due to oil-supply security concerns, it is easily justifiable as the most economic way to bring Kazakh crude

FIGURE 2
KAZAKHSTAN–CHINA OIL PIPELINE: EXISTING ROUTE



oil into the western Chinese market. China wins, because it gains what it sees as "secure" oil supplies; Kazakhstan gains a crude export route independent of Russia and a new market for its oil; and Russian companies gain an additional route for getting western Siberian crude oil production into the Chinese market.

A RUSSIA–CHINA PIPELINE

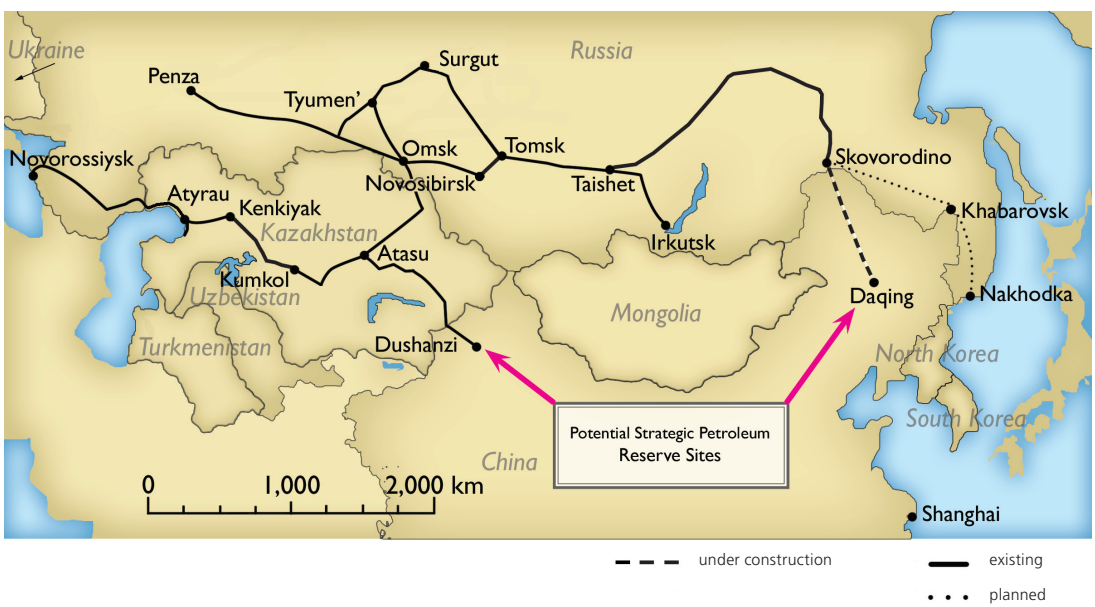
China views Russia as a rich and secure oil source capable of delivering crude overland, far from U.S. Navy–patrolled sea routes. China and Russia first began discussing a pipeline in 1994. Yukos unveiled plans in 2001 to construct a pipeline from Angarsk to Daqing. These plans were suspended during the Kremlin's 2004–2007 assault on Yukos and have been superseded by Transneft's massive East Siberia–Pacific Ocean (ESPO) pipeline. The ESPO's first section, from Taishet to Skovorodino, is complete and can now pump crude, although as of September 2009 the line was running in reverse, moving crude into the existing western Siberian pipeline network. The second half of the line runs 2,100 km

from Skovorodino to Nakhodka, on the Sea of Japan, and the entire line may not be fully operational until 2025.[31] Figure 3 shows oil pipelines existing, under construction, and planned from Russia.

In the meantime, China has been importing increasing volumes of crude from Russia by rail (as well as smaller volumes through the Kazakhstan–China pipeline). In 2007 and 2008, China imported an average of more than 300,000 bpd of Russian crude.[32] Shipping crude by rail can cost twice as much as shipping it by pipeline, however.[33] Driven by this reality and by the fact that regional rail infrastructure likely cannot handle China's ultimately desired crude volumes, CNPC and Sinopec (the primary Chinese buyers of Russian crude) pushed for construction of a spur pipeline from Skovorodino to Daqing, in Heilongjiang Province. The entire spur line will run roughly a thousand kilometers (seventy kilometers on the Russian side and 965 km on the Chinese side) and will cost around $436 million.[34] The Chinese side is financing the majority of the spur's length, as it lies largely on Chinese soil. Initial capacity is slated to be fifteen million tons per year (300,000 bpd), with the possibility of later expansion to thirty million tons annually (600,000 bpd).[35]

Pricing disputes and a relative lack of profitability restrained Russian pipeline export plans to China for more than a decade. Until very recently, CNPC and Rosneft had serious disputes over rail crude-pricing formulas, and it is likely that similar issues may have affected the pipeline project. This would not be surprising, as the Kazakhstan–China pipeline has often run at below capacity

FIGURE 3
RUSSIA–CHINA OIL PIPELINES: EXISTING, UNDER CONSTRUCTION, AND PLANNED



due to pricing disputes.[36] Russian Railways, run by Viktor Yakunin, a Putin acquaintance and former KGB officer, also opposed pipeline construction, which would erode Russian Railways' substantial income from hauling oil to China.

The global financial crisis and Russian companies' need for cash have changed the landscape, however. In April 2009, Transneft and Rosneft signed an agreement for a $25 billion loan from China Development Bank in exchange for delivering 300,000 bpd of oil to China for the next twenty years and also building a 64 km spur pipeline from Skovorodino to the Chinese border, according to RIA Novosti. Russia's powerful railway lobby originally opposed the pipeline plan but in June 2008 the Russian Railways CEO retracted his prior opposition to the plan, saying instead that he hopes to ship marginal high-grade crude volumes of a few million tons per year to China.[37] Higher-quality crudes lose value when blended with lower-quality oils for pipeline shipment.

Russia's decision to ship oil to China by pipeline was driven in part by economic necessity, as Rosneft and Transneft needed a cash infusion in early 2009. It was also driven by the imperative of cementing the Sino-Russian energy relationship with a large-scale supply deal. During summer 2008, sources close to Rosneft indicated that despite the Russian government's growing desire for a pipeline to China, the company wanted to stall the spur pipeline for as long as possible due to the route's lower profitability relative to other options.[38]

The immediate economics of crude export from eastern Siberia changed in July 2009 as the Kremlin ordered a nine-month-long suspension of oil export duties on production from thirteen key oil fields, including Rosneft's large new Vankor field. That said, given Russia's gaping budget deficit as of December 2009 and resulting hunger for tax revenues, we believe there is a medium probability that the tax holiday will not be extended for more than twenty-four months, since it is more politically expedient to raise revenue by ending an oil tax holiday than by taxing citizens on food, alcohol, and other goods.

While the China–Russia pipeline deal is presently on track, there are still a number of potential friction points. Rosneft may still worry that near- and medium-term production from eastern Siberia cannot fill the spur line and ensure adequate supplies to the new 400,000 bpd refinery that the company plans to build near the Pacific port of Nakhodka.

Perhaps of greatest concern to Beijing, Moscow has and will have options to divert oil from China if it so desires. While the initial capacity of Russia's line to China will be 300,000 bpd, and could rise to 600,000 bpd, an alternative pipeline to the Pacific coast (perhaps with initial capacity available within ten years; and spurred by the potential Rosneft refinery at Nakhodka) could ultimately offer Moscow oil diversion alternatives that it might possibly use to pressure China. Russia can also move sufficient volumes of crude oil by rail to the Pacific

Ocean to allow it to cut off a substantial portion of pipeline exports to China in the event of a dispute. Transneft does not operate under the normal economic incentives that U.S. and European pipeline operators do, meaning that if ordered by the Kremlin, the company will favor achieving political objectives over the need to keep capacity utilization high to maximize earnings and please shareholders.

A BURMA–CHINA PIPELINE

The proposed Burma–China oil pipeline aims to reduce China's reliance on oil shipped through the Malacca Strait. The idea of the pipeline was first articulated publicly in 2004 by Yunnan University professor Yang Xiaohui.[39] Yang argued that given Burma and Southeast Asia's historical collective role as a "backdoor" supply line for China, a Burma–China line would reduce reliance on Malacca and help secure Chinese oil imports.[40]

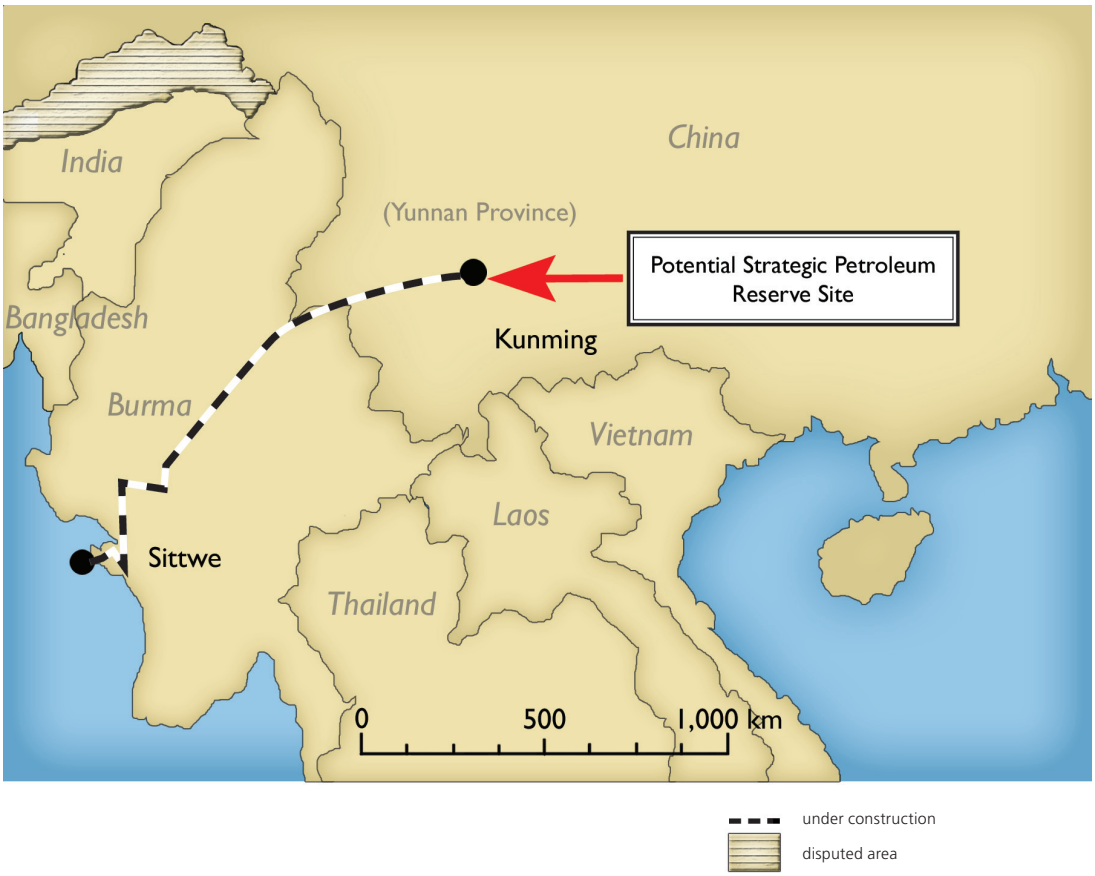
National and local economic development interests then worked to generate additional support for the project. The Yunnan provincial government subsequently professed its support for the project, and in early 2006 the Burma–China pipeline emerged on the national radar screen when the National Development and Reform Commission's (NDRC's) 2005 "Refining Industry Development Overview" named it one of four key oil import channels.[41] Figure 4 shows the proposed pipeline route and facilities that might be associated with the project.

It appears that CNPC will finance the bulk of the line's construction costs, in addition to supporting infrastructure. If the project proceeds, by 2010 CNPC plans to construct an oil wharf capable of berthing tankers of 300,000 deadweight tonnage, as well as storage facilities capable of holding more than four million barrels of crude.[42] The project will be a key element of China's plans to promote inland economic development, as its southwest provinces of Yunnan, Tibet, Guizhou, and Guangxi, as well as Chongqing Municipality, often have difficulty receiving stable fuel supplies from the refining centers at Lanzhou and Guangzhou.[43]

One proposal includes constructing a 400,000 bpd refinery and a co-located million-ton-per-year ethylene plant near Kunming, Yunnan.[44] The government of Chongqing Municipality, with the support of Sinopec, has also proposed extending the line to Chongqing and building refining facilities there.[45] The pipeline's initial capacity is slated to be 200,000 bpd, but if it is expanded to 300,000 or 400,000 bpd both Kunming and Chongqing could build refineries of significant size. It is currently unclear whether or not the tragic May 2008 Sichuan earthquake might cause national and provincial officials to reconsider locating a large refinery near an active seismic zone.

The NDRC might prefer constructing refineries near both cities, as it allows both areas to gain economically and would also permit the central government

FIGURE 4
BURMA–CHINA OIL PIPELINE: PROPOSED ROUTE AND ASSOCIATED FACILITIES



to reward both of the main state-owned refiners, CNPC and Sinopec. Southwest China is currently a zone of competition between the two, with traditional oil company "spheres of influence" overlapping increasingly as each company seeks a greater degree of vertical integration and tries to seize market share.[46] For example, CNPC and Sinopec competed vigorously in early 2007 to win approval to build a 200,000 bpd refinery in Guangxi.[47] CNPC emerged victorious, probably because it can use its flagship Sudan project to guarantee crude oil supplies to the refinery.

From the economic perspective, a Burma–China pipeline may make sense, as the costs of piping crude to inland refineries in southwest China and then distributing refined products through the expanding pipeline network likely approximate those of shipping crude by tanker to southeast China, refining it there, and then shipping products by pipe or rail to southwest Chinese consumers.

A comparative example of overland pipeline crude competing successfully with seaborne crude in a continental market is that of Canadian oil imports into the midwestern United States. Recently, the well developed American pipeline

network has allowed Canadian crude to penetrate almost to the Gulf Coast, the epicenter of U.S. seaborne crude imports.[48] China's pipeline network for crude and products cannot compare with that of the United States at present, but the NDRC and the state oil companies are working quickly to expand China's domestic pipeline systems for oil and refined products, so regional markets are likely to become increasingly integrated over time.

The Burma–China pipeline also provides an impetus for enhancing crude and product supplies by building additional regional refineries and expanding the area's product pipeline networks. Oil product demand, particularly for motor fuels, has been growing strongly in southwestern China in recent years as the area undergoes rapid economic development and consumer incomes rise. Historically, the region has been short on refining capacity and a refinery at the terminus of the pipeline from Burma would help to address this deficiency.[49] Expanding regional oil-processing capacity will also create significant employment, through construction work and, later, for manning the facilities. As China reforms its domestic oil pricing system, having refineries in remote southwest China might give the owner of those plants a high degree of price-setting power and the ability to charge a premium for fuel produced.

From the security perspective, however, a Burma–China pipeline largely fails the test. It would allow around 200,000 bpd of oil imports to bypass the Malacca Strait, yet it would be exposed to major security risks in Burma, which is ruled by a capricious junta and still struggles with ethnic separatism in regions through which the pipeline will pass.[50] Separatism still smolders in Burma's hinterlands, as evidenced by the August 2009 clashes in Burma's Kokang region that sent at least thirty thousand refugees streaming into China's Yunnan Province. Transit countries hosting pipelines gain significant strategic leverage. This leverage can manifest itself in calculated strategic moves or in disputes over other factors, such as pricing and transit payments. For example, Ukraine effectively reduced European natural-gas supplies in the winter of 2005–2006 by siphoning off gas to replace supplies to Ukraine that Gazprom had cut and was able thereby to put Russia in a very difficult position diplomatically. The same dynamic unfolded in even starker fashion when Gazprom cut off gas supplies to Ukraine in January 2009 and gas supplies actually stopped for several days to a number of Eastern and Central European consumers of Russian gas.

China would also be seen as directly financing the Burmese junta's rule and its repression of the population, since an operational oil line would likely generate direct transit payments of at least fourteen million dollars a year.[51] Furthermore, in the event of conflict, the oil port/pipeline terminus at Sittwe on Burma's coast would be a concentrated target set, highly vulnerable to blockade or precision strike.

A proposed canal across Thailand's Kra Isthmus, now stalled, appears unrealistic. Zhang Xuegang, a scholar at the China Institutes of Contemporary International Relations, maintains optimistically that it "could . . . provide a strategic seaway to the Chinese navy" through which "fleets could . . . more easily protect the nearby sea-lanes and gain access to the Indian Ocean."[52] But a canal across the isthmus could cost twenty billion dollars or more to build and, like the Burma–China pipeline, would simply concentrate the target set for potential blockaders.

A PAKISTAN–CHINA PIPELINE?

Some Pakistani and Chinese analysts have also suggested the possibility of building an "energy corridor," including oil pipelines, from Pakistan into western China to diversify China's oil import routes and avoid the Malacca Strait.[53] Yet other Chinese analysts increasingly recognize that geographic and security barriers render a Pakistan–China oil pipeline unfeasible in the near and medium terms.[54]

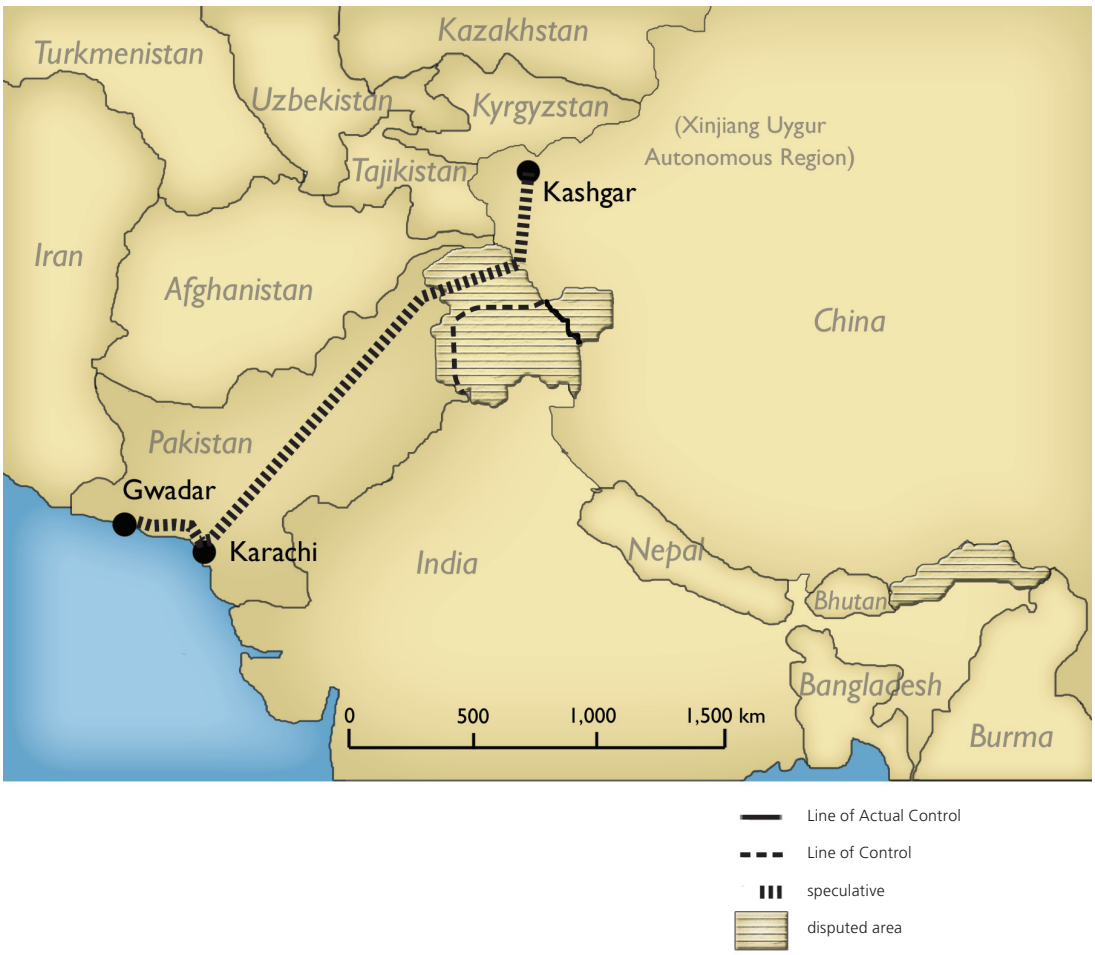
These Chinese analysts express grave reservations about the security situation in Pakistan in light of the country's perpetual violence and increasing political instability, along with the rise of Islamic fundamentalism and terrorist attacks against outsiders. Indeed, Chinese workers have been kidnapped and killed in at least three separate incidents in western and northwestern Pakistan, the regions that would be traversed by a Pakistan–China pipeline.[55] The pipeline would also transit a part of Kashmir that, while controlled by Pakistan, is also claimed by India. Figure 5 shows the currently proposed route of a Pakistan–China oil pipeline. In addition to security problems, there would also be serious financial barriers, since oil transport costs could run to at least ten dollars a barrel to achieve payout plus a 10 percent rate of return.

Even at a price above a hundred dollars a barrel, a transport cost of nine to ten dollars a barrel is very high compared to that of seaborne shipping. If a Chinese oil company chose to move 200,000 bpd of crude through the Burma–China pipeline and 250,000 bpd through the Pakistan–China line, it could lose roughly a billion dollars a year compared to what it would have paid to move the oil by sea to eastern China.* Beijing would likely have to subsidize such operations, either directly or indirectly. A billion dollars is roughly 6.8 billion RMB at today's exchange rates and exceeds by 30 percent the Chinese government's total of 4.9 billion RMB in subsidy payments to refiners in 2007.

If the Chinese government allowed fuel to be sold at market prices, companies might have a much higher incentive to build pipelines into remote areas

* This assumes a transport cost difference between pipeline and sea transport of $3/bbl for oil moving through the Burma–China line and $7/bbl for oil moving through the Pakistan–China line.

FIGURE 5
PAKISTAN–CHINA OIL PIPELINE: PROPOSED ROUTE



like western and southwestern China; regional fuel deficits could allow them to charge premium rates for fuels produced by refineries at the end of the pipeline. Under these conditions, pipeline plans might be more financially attractive than they are now, with Chinese oil product prices lagging international market prices by 15–20 percent during times of high crude oil prices, such as those of midsummer 2008.

Geography and cost alone would pose major challenges, however, even under the best of conditions. The pipeline would have to be constructed in some of the world's most challenging terrain. Moreover, it would need to lift oil from sea level at Gwadar up to the 15,400-foot-high Khunjerab Pass, requiring massive pumping power and steady electrical supplies in remote areas vulnerable to insurgent activity. By way of comparison, the Trans-Alaska and Baku–Tbilisi–Ceyhan pipelines climb from sea level to apogees of 2,800 feet and 9,000 feet,

respectively, before returning to sea level.[56] The Trans-Ecuadorian Pipeline (TEP) climbs from a thousand feet above sea level to 13,300 feet above sea level in the relatively short distance of 125 miles, making some cite the TEP as an example of the "technical feasibility" of a pipeline from Pakistan to China. However, further analysis causes that comparison to fall short, because at 310 miles the TEP is only about one-fifth the length of the proposed pipeline from Pakistan to China and does not cross territory rife with insurgent activity and general instability.

Despite the major challenges, there is still considerable discussion from a variety of Pakistani and Indian sources regarding the latent strategic value of the new port at Gwadar, in western Pakistan along the Arabian Sea, a likely starting point for any Pakistan–China oil pipeline. For all of the hype about the development of Gwadar as a facility to support Chinese naval operations in the Indian Ocean, however, there is in fact very little hard evidence to suggest this is the case, and the contract for the management of the port was awarded to the Port Authority of Singapore. In fact, barring a major shift by the Chinese side, it appears that the main impetus for establishing an "energy corridor" is coming from the Pakistani side.[57] President Pervez Musharraf pushed the idea in June 2006 and apparently raised the issue again during talks with President Hu Jintao during the April 2008 Bo'ao Forum, but with no apparent results to date.[58]

DOWNSIDES

The enthusiasm with which some Chinese analysts contemplate these pipeline projects is based, as we have seen, on a conviction that they will reduce China's reliance on seaborne oil imports, which, they fear, may be easily interdicted in time of crisis. Too many of the (relatively few) analyses of these issues produced thus far have, however, failed to consider the physical and economic realities of oil transshipment, which greatly complicate seaborne oil blockade operations.

High Transport and Construction Costs

Importing oil into southwest China through a Burma–China pipeline rather than through an expanded pipe network serving existing oil ports at Maoming and elsewhere in South China will be very costly. Pipelines are expensive to construct in frontier regions like Burma, and new deepwater oil-import jetties and associated storage facilities will have to be built at the pipeline start point on the Burmese coast. Pipeline shipping will also be very expensive relative to maritime shipping, as pumping oil through the planned Burmese line could cost more than four dollars a barrel, assuming that CNPC seeks at least a 10 percent internal rate of return in operating the line.[59]

In contrast, shipping oil by sea from the Persian Gulf to South China can cost as little as US$1.00 per barrel for transport costs, and piping it to interior

refineries in areas likely to be served by the Burma–China line would cost an additional two or three dollars a barrel.* This represents a substantial cost savings over moving crude through the proposed Burma–China line to refineries in Yunnan. To lower "stated" project costs, the NDRC might subsidize project financing or take other measures to reward CNPC, any of which would cost the Chinese government more than if it relied on seaborne imports to South China for supplying pipelines to the interior.

At newbuild prices for very large crude carriers (VLCCs), roughly $140 million per vessel, one could build fourteen ships for the two-billion-dollar estimated price of the Burma–China pipeline. Given that each VLCC carries roughly two million barrels of crude and that the round-trip from the Persian Gulf to southeast China takes thirty total days, fourteen additional supertankers could deliver an average of 666,000 bpd of crude, versus 200,000 bpd for the planned pipeline. The cost disparity between maritime and pipeline shipping would be even greater for the Pakistan–China line, through which it could cost up to 10 dollars to move a barrel of oil to Ürümqi in western China.[60] After reaching Ürümqi, the oil would have to be piped an additional three or four thousand kilometers to reach major east coast demand centers, meaning that transport costs from the Persian Gulf to Chinese end users could exceed fifteen dollars a barrel, as opposed to closer to US$2.00/barrel (bbl) for oil transported from the Gulf to eastern China on supertankers as of March 2009 (the peak equivalent approached $4–$5/bbl in July 2008; during this time, however, pipeline operators raised rates as well).[61]

Growing Demand in Pipeline Terminus Region

Driven by earthquake reconstruction in Sichuan, the rapid development of Chongqing, and other regional growth, oil product demand in interior southwest China is on the upswing and will continue to grow strongly as the government promotes further growth of domestic consumption. Chongqing's mayor says the city, which is analogous to "China's Chicago" for its position as a linchpin inland economic powerhouse, will see 14.5 percent year-on-year gross domestic product growth in 2009.[62] Building more local refining capacity and expanding the domestic pipeline system into underserved areas would be a more secure and lower-cost way of ensuring oil and product supplies while still creating jobs.

Physical Security Risks

Pipelines face substantial physical security risks. In fact, with the Burma and Pakistan pipelines, there would be a twofold vulnerability. First, oil would have

* Based on costs of moving oil and refined products from the sea to and from inland Russian refineries, which are at a distance from seaports similar to that at which plants at the terminus of the Burma–China line would be.

to be brought by sea to the pipeline terminus via long sea-lanes, concentrating the target set for an enemy force.[63] Then, it would have to be pumped through a long line traversing remote terrain in potentially insecure areas.[64]

Pipelines are typically more vulnerable to sustained disruptions than are ships. Tankers at sea can be rerouted, while pipelines are fixed links between a producer and consumer. Terrorists and insurgents have mounted only a handful of successful attacks on oil tankers (for example, *Limburg,* off Yemen in 2002; and *Sirius Star,* off Kenya in November 2008). However, nonstate actors in Colombia, Nigeria, Iraq, and other countries have been able to disrupt oil pipeline operations on a consistent basis despite preventative efforts by local security forces. As for China, CNPC reports that from 2002 to 2006, thieves "have illegally drilled into" its pipelines "18,382 times . . . causing the company a loss of more than 500 million RMB ($72 million)."[65]

Pipelines offer a wealth of targeting options to nonstate actors and opposing militaries.[66] Destroying or damaging the pipeline itself is relatively simple; an attacker simply needs to know where the line is, dig down to it if necessary (some, though not all, pipelines are buried), and use explosives to rupture it.[67] Such attacks typically cause only brief disruptions, as spare line is relatively cheap and simple to stock, and repairs can usually be carried out quickly—although repair crews would have more trouble working in remote areas, whose populations in Burma or Pakistan might be armed and hostile. More critical pipeline vulnerabilities include pump stations, storage facilities, pipeline termini, and the power supplies that run pumps and other key equipment.[68] On one hand, most of these facilities would be more difficult for nonstate groups to target successfully, because government forces could concentrate their resources on protecting such discrete facilities, as opposed to several thousand kilometers of pipe. On the other hand, electrical power generators, transmission towers, and buried cables can be attacked as readily as pipelines. Disrupting power supplies would reduce throughput in the best case and could halt it completely if attacks became sufficiently severe (e.g., were conducted simultaneously at different points). According to Li Wei, director of the center for counterterrorism studies at the China Institutes of Contemporary International Relations, "Though terrorists are more likely to aim at causing a large number of casualties instead of attacking pipelines in China, there is still the possibility."[69]

During an interstate conflict, however, the dynamics would be quite different. Modern military forces equipped with precision-guided munitions could target pumping stations and other vital points, many of which run through remote areas with low populations, and rapidly disable pipelines carrying oil or gas into China. A maritime blockade, on the other hand, would be extremely difficult to conduct effectively. Oil cargoes in normal commerce may change ownership

ten or more times while a ship is at sea, which reduces the effectiveness of a distant blockade since it is challenging to identify a cargo's final destination.[70] Moreover, if implementing a close blockade of the Chinese coast would solve the destination-identification problem, it would also bring the blockader's forces within range of numerous and capable Chinese access-denial systems, including ballistic and cruise missiles, naval mines, and submarines.[71] In short, the flexibility of modern maritime oil transport confers far greater oil-supply security benefits than would pipelines supplied by sea or traversing unstable regions.

A BAROMETER OF CHINESE TRUST IN MARKETS

Absent discovery of an economically viable large-scale substitute for crude oil, pipeline development will likely be insufficient to offset China's rising seaborne oil import demand. A simple comparison of planned oil pipeline supply additions to China's likely overall demand growth in coming years bears this out, as demand growth will very likely outstrip overland supply additions under even the most optimistic scenarios.

Some projects (e.g., the Burma line) make sense from local and corporate perspectives but not that of national oil security. The Burma line will be expensive to build. The numbers can be "massaged" to ensure that officially tabulated project costs remain near the stated figure of two billion dollars, but the real costs could be much higher. Also, given Burma's high political risk and the fact that placing a pipeline terminus along the poorly defensible Burmese coast might invite interdiction during wartime, relying on shipments through the Burma line would not enhance China's oil security. This increases transport cost and concentrates the target set for an adversary during a conflict but does not provide the same supply security gains that a pipeline from Kazakhstan or Russia can deliver.

A more secure approach might entail building a more comprehensive pipe grid connecting southern Chinese oil ports in Guangdong to the interior southwest provinces. Construction costs would likely be similar (possibly lower, without the political and security risks inherent in Burma). In addition, the immediate and long-term economic benefits could be high, since enhancing China's internal oil and products transportation grid would boost and stabilize fuel supplies to Guangxi and other relatively impoverished inland provinces in which Beijing hopes to catalyze development.

Other lines are simply unviable from nearly all perspectives. The very idea of a Pakistan line, with its formidable geography, its regional instability, and the absence of a major demand center at the terminus, exemplifies this chimera. That is not to say that there is no logical role for pipelines in China's oil import portfolio. Some pipeline projects are driven by geographic reality (e.g., the line

already delivering oil from Kazakhstan and the line under construction from Russia). The fields filling these lines are so far from the sea that an overland line is the most effective way to transport their oil into the Chinese market. Pipelines move oil much more cheaply than rail can. But, as happened in the early years of China's "Going Out" strategy, special interests also appear to be playing the security card to benefit themselves in the face of more rational, comprehensive calculations of national interest.

At the strategic level, a productive area for future research concerns the naval implications of Eurasian energy access, taken more broadly. This could be investigated by methodologies similar to those employed in this study to assess the relative dependence of China and India (as consumers) and Russia (as a supplier) on seaborne energy flows between now and 2025. It might be expected that Russia's preponderance of overland energy transport routes will tend to reinforce that nation's traditional continental orientation, whereas increasing reliance on seaborne energy imports in China and India will further the blue-water naval development cited in the *Global Trends 2025* report.[72]

A continued quest for higher overland oil deliveries will not enhance China's oil supply security substantially but will rather be a barometer of Chinese trust in global oil markets and maritime oil transport security. As this article has demonstrated, however, Chinese decision makers will ultimately have to face the fact that their nation's dependence on seaborne oil imports is likely only to increase. This reality and China's other growing overseas interests have already stimulated debate concerning the extent to which China should develop a blue-water navy to defend its commerce on the high seas.

Before Beijing commits firmly to such a substantial investment, which is likely to have tremendous geopolitical ramifications—some of them likely to involve counterbalancing by regional nations discomfited by such ambitious Chinese naval growth—it would be wise to see if China and the United States can come to a better understanding of their respective roles in the Asia-Pacific as well as work to clarify areas ripe for mutually beneficial energy security cooperation. Such strategic dialogue would be difficult to pursue, and it would not in itself resolve the substantial differences in national interests. But the economic interdependence between the two nations and the potential costs of miscommunication are so high that repeated efforts must be made.

This is a critical time in China's naval development, and the events of the next few years will have disproportionate influence. As a Chinese analyst at a high-level government institution told one of the authors recently, China's naval development will hinge on "China's understanding of the international system. If China feels that it is possible to rely on the international oil market, at least some

in China believe that a larger navy is unnecessary." A good first step would be to encourage Beijing to join two related international organizations. Washington should take the lead in trying to bring Beijing into the International Renewable Energy Agency (IRENA); as well as the International Energy Agency (IEA), as it meets the requirement to store 90 days of import reserves, so that strategic petroleum reserve inventories can be tracked and reported.

Even these modest measures may require time. The Chinese government is unlikely to immediately initiate a detailed oil inventory reporting system. Recent steps—such as the decision in late 2009 to stop publishing PetroChina and Sinopec's refined products inventories—are worrisome. The growing acrimony over proposed carbon emission restrictions in the wake of the disappointing December 2009 Copenhagen climate meetings also does not bode well for quick progress on diplomatic initiatives seeking Chinese oil inventory transparency in the next one to two years.

Despite these ongoing challenges, there remains room for optimism. The October 2007 issuance of a new maritime strategy by the U.S. sea services suggests that Washington is eager to support cooperative, collective approaches to maritime energy security. Discussion among China, the United States, and other key energy market stakeholders may facilitate adoption of energy security measures far more effective and mutually beneficial than expensive, limited-capacity, and vulnerable pipelines.

NOTES

The content of this analysis reflects only the authors' personal assessments and opinions and does not represent the official policies or assessments of the U.S. Department of Defense or Curium Capital Advisors, LLC. The authors thank Daniel Kostecka and several anonymous individuals for their useful comments and suggestions.

Where possible the maps accompanying this article, within their respective areas of coverage, portray clearly all major territorial disputes relevant to China, the focus of this study. Any failure to note territorial disputes or to characterize them in a certain way does not imply a failure to acknowledge them or a judgment concerning the relative validity or state of claims among the parties involved.

1. Oil and LNG differ fundamentally in commercial and strategic significance. There is a single world oil market, because transport is inexpensive and the import infrastructure is ubiquitous. The trade of LNG, by contrast, is shaped by a series of bilateral agreements and regional markets, because LNG is costlier to store and to move on and off ships. The strategic implications of China's small but increasing LNG imports are beyond the scope of this article, but an excellent discussion can be found in Mikkal Herberg, "The Geopolitics of China's LNG Development," in *China's Energy Strategy: The Impact on Beijing's Maritime Policies,* ed. Gabriel B. Collins, Andrew S. Erickson, Lyle J. Goldstein, and William S. Murray (Annapolis, Md.: Naval Institute Press, 2008), pp. 61–80.

2. For a regionwide perspective, see Bernard D. Cole, *Sea Lanes and Pipelines: Energy Security in East Asia* (Westport, Conn.: Praeger, 2008).

3. Office of the Director of National Intelligence, *ODNI Releases Global Trends*

Projections, ODNI News Release 19-08 (Washington, D.C.: Public Affairs Office, 20 November 2008).

4. *Global Trends 2025: A Transformed World* (Washington, D.C.: National Intelligence Council, November 2008), p. vii, available at www.dni.gov/.
5. Ibid., p. x.
6. For thorough analysis of this subject, see Andrew Erickson, Lyle Goldstein, and Carnes Lord, *China Goes to Sea: Maritime Transformation in Comparative Historical Perspective* (Annapolis, Md.: Naval Institute Press, 2009).
7. Skyrocketing car ownership will hamper efforts to make China's economy less petroleum-intensive.
8. This was despite the worst global recession since the 1930s. Grant Smith and Christian Smollinger, "Crude Oil Rises in New York on Speculation of Inventory Decline," *Bloomberg,* 11 June 2008, www.bloomberg.com/; National Bureau of Statistics.
9. See Andrew S. Erickson, "Pipe Dream: China Seeks Land and Sea Energy Security," *Jane's Intelligence Review* (China Watch) 21, no. 8 (August 2009), pp. 54–55.
10. See, for example, 查道炯 [Zha Daojiong], "相互依赖与中国的石油供应安全" [Interdependence and China's Oil Supply Security], 世界经济与政治 [World Economics and Politics], no. 6 (2005), pp. 15–22.
11. 赵宏图 [Zhao Hongtu], "'马六甲困局'与中国能源安全再思考" [The "Malacca Dilemma" and Rethinking China's Energy Security], 现代国际关系 [Contemporary International Relations], no. 6 (2007), pp. 36–42.
12. Numerous Chinese articles and discussions with Chinese interlocutors from all these communities underscore this point. For complete analysis, see Andrew Erickson and Gabriel Collins, "Beijing's Energy Security Strategy: The Significance of a Chinese State-Owned Tanker Fleet," *Orbis* 51, no. 4 (Fall 2007), pp. 665–84.
13. 李小军 [Li Xiaojun], "论海权对中国石油安全的影响" [On the Influence of Sea Power upon China's Oil Security], 国际论坛 [International Forum] 6, no. 4 (July 2004), p. 18.
14. China National Petroleum Corporation (CNPC), as cited in Xin Dingding, Li Jing, and Wan Zhihong, "China Faces New Risk: Attacks on Pipelines," *China Daily,* 6 January 2010, www.chinadaily.com.cn/.
15. In a best case scenario, by 2015, 700,000 bpd supply potential piped into China from both countries combined would be a reasonable assumption.
16. "Казахстан приступает к строительству нефтепровода для экспорта своей нефти по Каспию" [Kazakhstan Prepares to Build a Pipeline for Exporting Its Oil across the Caspian], *Oil and Capital,* 7 June 2008, available at www.oilcapital.ru/.
17. Ibid.
18. Dennis Blair and Kenneth Lieberthal, "Smooth Sailing: The World's Shipping Lanes Are Safe," *Foreign Affairs* (May/June 2007). We assume that chartering a VLCC currently costs $65,000/day, that a disruption and rerouting would add four days' steaming time, and that the disruption would trigger additional vessel demand sufficient to double rates to $130,000/day. With a 1.9 million bbl cargo, this would cause transport costs to rise by only twenty-seven cents a barrel. We cite the higher cost figure because spot rates could climb much higher if a large number of ships are locked up under long-term charters and are not available for spot-market hire. Also, insurance costs are uncertain and would depend on the contingency that triggered the blockage.
19. 李杰 [Li Jie], "石油,中国需求与海道安全" [Oil, China's Requirements, and Sea-Lane Security], 舰船知识 [Naval and Merchant Ships] (September 2004), p. 12.
20. These weaknesses inherent in pipelines are recognized by Zhao Hongtu, "'Malacca Dilemma' and Rethinking China's Energy Security," pp. 40–41.
21. "Yunnan to Build New Gas Pipeline," *China Daily,* 19 November 2008, available at www.chinadaily.com.cn/.
22. See, for example, "Motiva Port Arthur Refinery to Become Largest Refinery in United States," *Motiva Enterprises LLC,* 21 September 2007, www.motivaenterprises.com; "Marathon's Garyville Refinery Expansion

Project Expected to Create Jobs for Louisiana," *Marathon: Garyville Major Expansion,* 23 February 2007, www.marathongme.com/; and "Reliance Industries Pushes to Complete Jamnagar Refinery," *ICIS Chemical Business,* 23 July 2007, www.icis.com.

23. Erica Downs, *Brookings Foreign Policy Studies Energy Security Series: China* (Washington, D.C.: Brookings Institution, December 2006), available at www3.brookings.edu/.
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25. Ibid.
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27. *Argus China Petroleum* 2, no. 2 (February 2008), p. 23.
28. Nadia Rodova, "Russia Eyes 2007 Start of Exports to China, Crude Would Transit Kazakhstan on Atasu–Alashankou Line," *Platts Oilgram News,* 4 June 2007.
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30. "China's CNPC Starts Building Xinjiang Reserve," *Platts Oilgram News,* 11 March 2008.
31. *Argus China Petroleum,* p. 23.
32. Energy Intelligence Group, "China Oil Import Data 2007," *Energy Intelligence,* www.energyintel.com/.
33. Authors' models.
34. "Variables in Construction of China–Russia Oil Pipeline," *Zhongguo Tongxun She,* BBC, 16 December 2007.
35. Lyudmila Podobedova, "Bogdanchikov Tells Chinese to Wait," *RosBisnesConsulting,* 6 September 2007, www.rbcdaily.ru.
36. Interview, Tokyo, April 2007.
37. Dmitry Zhdannikov, "Russian Rail Hopes to Ship Oil to China Post-2010," Reuters, 22 February 2008, available at www.reuters.com.
38. Podobedova, "Bogdanchikov Tells Chinese to Wait."
39. Yang Xiaohui, "Chinese Oil Strategy's Southwestern Orientation," *Contemporary Asia-Pacific,* no. 3 (2004), p. 13.
40. Ibid.
41. 林锡星 [Lin Xixing], "中国新石油通道的两难选择" [The Two Difficult Choices Facing China's New Oil Passage], 中国新闻周刊 [China News Weekly], no. 9 (2004), p. 50; 尹振茂 [Yin Zhenmao], "中缅管道大器将成" [Sino-Burmese Pipeline Will Achieve High Capacity], 中国石油石化 [China Petroleum and Petrochemical], 15 February 2007, p. 29.
42. Yin Zhenmao, "Sino-Burmese Pipeline Will Achieve High Capacity," p. 29.
43. 张娥 [Zhang 'E], "能源走廊的来客" [A Visitor to the Energy Corridor], 中国石油石化 [China Petroleum and Petrochemical], 1 March 2006, p. 29. The recent Sichuan earthquake and Chongqing gas explosion are unlikely to offer further justification for the Burma pipeline. Local refineries fed by a Burma line would be much harder to repair after an earthquake than would product pipelines or rail lines bringing fuel from other provinces.
44. Lin Xixing, "Two Difficult Choices Facing China's New Oil Passage," p. 33.
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62. "今年重庆GDP预计增14.5% 明年预计增15%" [Chongqing's GDP Is Forecast to Increase by 14.5% This Year, and by 15% Next Year], 重庆搜房网 [Chongqing Real Estate Net], 18 December 2009, www.168028.com.
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FORMAL MENTORING IN THE U.S. MILITARY

Research Evidence, Lingering Questions, and Recommendations

W. Brad Johnson and Gene R. Andersen

Mentoring is a developmental relationship in which a more experienced person serves as a guide, role model, teacher, and sponsor for a less experienced person—usually in the same organization. A mentor typically becomes invested in the career progression and development of the protégé or mentee and often provides such essential functions as counsel, challenge, and support. At times, mentorships evolve into enduring friendships, even after the active phase of the relationship has ended.[1]

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In the last several years, mentoring has become a hot topic among military leaders. The U.S. Army's field manual series now includes a specific publication on the development and effective conduct of mentorships with subordinates.[2] In his 2003 "Guidance for the Navy," the Chief of Naval Operations at that time, Admiral Vernon Clark, specified that mentoring sailors should be a preeminent focus of the Navy; Admiral Clark went so far as to direct that a mentor be assigned for every service member on active duty.[3] In the last three years alone, formal mentoring programs and online e-mentoring matching services have proliferated within the armed forces.

Why has mentoring so captured the military's attention? There are several good reasons. Evidence in the civilian world suggests that effective mentoring relationships can enhance corporate recruitment and

retention efforts, help to bring new hires up to speed, support diversity initiatives, enhance employee satisfaction and promotion success, support strategic succession planning, and improve communication and knowledge transfer within organizations.[4] In the military, anecdotal evidence and survey research suggest that flag officers often report having been mentored by senior officers at key junctures in their careers; mentors play a role in getting new talent noticed and promoted.[5]

Perhaps even more important, extensive literature reviews of three decades of research on mentoring outcomes in civilian organizations reveal that mentoring clearly fosters career success.[6] Across organizations, settings, and research designs, those who report having had a mentor enjoy more rapid promotions, greater productivity, better professional confidence, higher competence, lower levels of job-related stress, more positive attitudes toward work, more career satisfaction, and even a greater perceived chance of becoming eminent in their fields. What's more, mentored employees are more committed, both to their organizations and to their careers.[7] The most extensive meta-analytic cross-disciplinary review of mentoring research to date reviewed 15,131 articles and reports on the topic.[8] Findings from 112 studies that satisfied the rigorous inclusion criteria of that review revealed that mentoring had significant positive correlations with work performance, retention, organizational citizenship behavior, positive work attitudes, personal health, quantity of interpersonal relationships, greater career recognition, and general career competence. Although a variety of other variables clearly influence career success (e.g., ability, personality, motivation), it is clear that the positive effects of mentoring are pervasive and consistent.[9]

In light of the success of mentoring in the business arena, many organizations have instituted formal mentoring programs. "Rather than leave mentoring to happenstance, formal programs give the organization control over who is mentored, when they are mentored, and even how they are mentored."[10] Considering the "war for talent" in the contemporary business environment, institutions such as the military are well served by programs that attract, retain, and develop top-notch talent.[11] Further, recent survey research indicates that new college graduates are more attracted to organizations depicted as having formal mentoring programs.[12]

Although formal mentoring programs are multiplying in the military and other organizations, there is relatively little research evidence bearing on the design, key ingredients, and ultimate efficacy of these programs.[13] Further, very few organizations have strategically aligned their mentoring programs with long-term objectives;[14] like other organizations, the military has implemented formal mentoring programs in the absence of a corporate- or command-level

mentoring strategy. Getting the programmatic cart before the strategic horse may help to explain the negative emotional reactions that the term "mentoring" tends to elicit in some surveys of military personnel.[15]

The purpose of this article is to review evidence related to mentoring in organizations, particularly military organizations. The authors specifically emphasize the literature bearing on formal mentoring programs and highlight the salient variables linked with program outcomes. The article concludes with numerous recommendations for military leaders who wish to integrate formal mentoring programs into their strategic planning.

MENTORING IN THE MILITARY

There are relatively few published studies of mentoring prevalence and outcomes in military organizations. Two studies of Naval Academy midshipmen, with sample sizes of 568 and 576, show that between 40 percent and 45 percent of midshipmen report having significant mentoring relationships at the Academy.[16] Female midshipmen are more likely (63 percent) than male midshipmen (45 percent) to be mentored, and mentors are most often military officers (41 percent), civilian faculty members (30 percent), or more senior midshipmen (28 percent). Although having a mentor was not correlated by these studies with academic standing, students mentored at the Naval Academy are significantly more satisfied with their education and significantly more likely to mentor others in return.[17]

A large survey of mentoring in the Army ($N = 3{,}715$) revealed that 84 percent of both senior noncommissioned officers and commissioned officers report having at least one mentor in the course of their careers.[18] There were no disparities in prevalence or perceived value of mentoring based on gender or race of respondents. The most recent study of mentoring in the military surveyed 305 senior military officers attending the National War College.[19] Findings revealed that 91 percent had been mentored during their military careers and that 87 percent had mentored other military members in turn. These officers reported benefiting from both career and psychosocial mentoring functions or mentor behaviors.

Finally, there is one published study on the mentoring experiences of flag-rank officers in the Navy.[20] Six hundred ninety-one retired admirals responded to a Navywide survey of their mentoring experiences while in the fleet. A full 67 percent reported having at least one salient mentor during their careers as officers, and most had had at least three important mentors. In most cases, the mentorships formed due to the mentors' initiative or through mutual interest. Admirals who had been mentored were extremely satisfied with the experience, more satisfied with their Navy careers than were nonmentored respondents,

and significantly more likely to rate mentoring as extremely important for the Navy.

The sparse published research on mentoring in the military shows that the probability of finding a mentor increases the longer one serves and that mentoring seems to bolster satisfaction with one's military education or career. Mentoring also begets mentoring; mentored military personnel are more likely to report mentoring others. Mentoring appears to be an equal-opportunity relationship in the military, in that women and minority respondents are mentored at rates equivalent to men and majority-group members. Finally, when mentoring occurs, it is often because a senior person in the military initiates the relationship; it is possible that hierarchical elements of the military culture make mentee-initiated relationships less likely.

FORMAL MENTORING PROGRAMS

Formal mentoring programs are now ubiquitous features of most organizations and institutions. *Informal,* or traditional, mentoring relationships emerge slowly and naturally through informal interactions between junior and senior members of organizations; without any external intervention, these relationships are often spontaneous, rooted in shared interests, and mutually initiated.[21] In contrast, a *formal* mentoring relationship is instigated by an organization and usually involves formal assignment or matching of mentee to mentor.[22] One researcher recently distinguished formal from informal mentorships using four salient dimensions.[23] *Intensity* is the first dimension; informal mentorships are more intense emotionally, because both members are committed naturally and intrinsically. *Visibility* is the second dimension; while formally assigned mentorships are known and accepted by the organization, informal pairings are less visible and often operate without the endorsement or even awareness of the organization. The third dimension is *focus*. In formal mentoring programs, the organization often prescribes who can mentor, what training will occur, and what the focus of mentorship shall be; this is in contrast to informal dyads, which tend to be more generally focused on the mentee's career and psychosocial development. Finally, formal and informal mentorships vary on the basis of *duration*. Whereas informal relationships are unconstrained with regard to parameters and are therefore much longer in duration, formal pairings usually operate within clear guidelines for meeting frequency and have expectations about termination. Many formal mentoring programs share common goals, such as socializing new members into organizational culture, planning succession, lowering attrition, or retaining more women and minority employees.[24]

What does the outcome research show about the efficacy of informal versus formally assigned mentorships? Both traditional and meta-analytic literature

reviews consistently indicate that when formal and informal mentoring relationships are compared, informal mentoring is superior to that formally assigned.[25] In fact, not a single well-controlled study has shown formal mentoring to be superior to informal mentoring.[26] In several studies, formal mentorships result in equivalent or even superior levels of psychosocial support (e.g., emotional encouragement), but formal programs rarely produce equivalent career support. The fact that formal mentorships are limited in duration may help to explain why there is less time for the mentor to offer career-related functions. "The difference between how protégés in informal and formal programs were selected could explain the improved success of informal mentoring. In informal mentoring, mentors and protégés select each other naturally as part of a mutual attraction and similarity of interests and personality characteristics."[27]

Similarly, it has been noted that in formal programs, perfect strangers may be paired on the basis of little data or with little communication about the matching process: "Finding a mentor in a formal program may be like trying to find true love on a blind date—it can happen, but the odds are against it."[28]

One of the problems with evaluating the efficacy of formal mentoring programs is the wide heterogeneity across programs with respect to program design and implementation. Programs vary wildly with regard to rigor of the matching process, recruitment and training of mentors, promulgation of clear program expectations to both members of the dyad, level of mentor commitment, and ongoing organization oversight and support.[29] When formal mentoring programs are compared on the basis of level of facilitation by the organization—high-facilitation programs provide thorough training for both parties, monthly oversight meetings, etc.—outcomes indicate that employees in high-facilitation programs report greater levels of satisfaction and organizational commitment.

In spite of the fact that U.S. military commands have instituted broad and sweeping requirements for mentoring, including formal mentoring programs in many locations, a careful review of the literature reveals not a single published evaluation of the efficacy of formal military mentoring. The only outcome report evaluating mentoring with American military personnel was presented at a conference in 1998; it generally supported the conclusions of researchers in civilian organizations. Compared to a small sample of Medical Service Corps officers in a formal mentoring program, officers in informal mentorships had slightly higher job satisfaction and firmer intentions to remain in the Navy; however, officers in both formal and informal programs were more satisfied and more likely to remain in the Navy than those reporting no mentor relationship.[30] In a broad survey of formal mentoring programs in six Taiwan service academies (N = 1,083), participation in a formal mentoring program led to greater

satisfaction, greater career commitment, and decreased stress than was the case for students with no mentors;[31] there was no comparison to students who were informally mentored. Finally, it has been reported that a formal peer mentoring program in the British Royal Marines was used successfully to identify and ameliorate trauma-related mental-health problems. This program, however, had little connection to mentoring as commonly conceptualized and more to do with trauma risk management and peer support.[32]

A survey of officers in the U.S. Army revealed that although many officers want mentorships, they do not want formal programs to legislate these relationships.[33] For many in the military, mentoring has become a faddish buzzword; a traditionally meaningful developmental relationship has slowly become saddled with the baggage of programmatic requirements and checklists. Various authors have warned organizations about the pitfalls of instituting formal mentoring programs in the absence of a thoughtful strategy: "The absence of a corporate mentoring strategy can lead to inconsistencies and inefficiencies across formal mentoring programs within an organization. This ineffectiveness can lead to formal mentoring programs being attacked, discredited, and ultimately, discontinued."[34]

MILITARY MENTORING: VEXING PARADOXES AND LINGERING QUESTIONS

The foregoing literature review sets the stage for a survey of the ongoing questions and perennial tensions regarding efforts to formalize mentoring in the military. We now summarize the most pressing of the lingering issues and unanswered questions.

Few Mentoring Programs Operationally Define the Term "Mentoring." Even a cursory review of the formal mentoring–program research reveals that researchers and program administrators employ a heterogeneous collection of mentoring definitions or, worse, fail to define the term altogether.[35] Within the military, the term "mentoring" is used so cavalierly and applied to such a wide array of command programs and initiatives that service members—including program participants—may have little idea what mentors are supposed to "do" and what these dyads are supposed to accomplish; this, of course, may elicit a range of reactions to formal programs, from enthusiasm to cynicism.[36] Although the Army's Field Manual 6-22 now differentiates mentorship from counseling and coaching, defining it as "the voluntary developmental relationship that exists between a person of greater experience and a person of lesser experience that is characterized by mutual trust and respect," we suspect that this definition and the subsequent discussion in the manual only scratch the surface

when it comes to helping the average soldier execute an effective mentorship.[37] It will behoove senior military leaders to operationalize clearly such terms as "mentor" and "mentoring" and to differentiate the mentor relationship from sponsorship, coaching, counseling, and leadership more broadly.

For Better or Worse, the Term "Mentoring" Comes with Baggage in the Military. Perhaps more than many organizations, the U.S. military—owing to a high degree of functional specialization—contains a wide array of distinct subcultures. A number of groups within the military harbor entrenched negative views regarding the mentoring construct. For instance, some officers equate mentoring with exclusivity, unfairness, and cronyism.[38] Nowhere was this negative reaction more evident than in reactions to the "Green Bowlers," a secret fraternity of Naval Academy graduates whose members aroused fierce condemnation in the early twentieth century by helping one another gain promotion in the fleet;[39] to this day, many senior naval officers equate mentoring with favoritism. In contrast, recent interviews with a large sample of U.S. Navy admirals revealed that mentorship is associated with meritocracy in the minds of many.[40] That is, many admirals believe that star-quality officers get mentored and that such extra attention is well deserved and even essential if the Navy is to achieve sound succession planning in its leadership. Either way, a successful military-wide mentoring program must address the historical baggage.

Does Everyone Deserve to Be Mentored? Many formal mentoring programs are rooted in the assumption not only that everyone deserves to be mentored but that everyone will benefit from it. In fact, however, traditional mentorships are by nature exclusive and designed to nurture and promote the rising stars in any organization.[41] If high-quality and purposeful mentoring offers one avenue for military leadership succession planning, the military will need both to encourage broad career-development programs for all military members and to craft more intensive and selective mentoring pipelines for its most promising junior talent.

Mentoring Is Only One Predictor of Career Success in the Military. At times, organizations are smitten with the idea of mentoring; charging ahead with mandatory mentoring programs for all employees, program administrators can easily forget that mentoring—while profoundly helpful to many—is just one of several variables predicting career success. For instance, various strands of organizational research indicate that—in addition to being protégés—persons who have more need for achievement, intelligence, goal orientation, career motivation, self-confidence, and flexibility are likely to achieve greater career success than those with lower scores on those variables.[42] It is important to keep in mind that mentoring accounts for only a portion of the explained variance in career

success for military personnel. In addition to developing mentoring programs, military leaders should consider educational and skill-development modules designed to enhance career self-efficacy, initiative taking, and goal orientation in military personnel.

Developmental Networks Are More Powerful than One-on-One Mentoring Alone. Although most human resources leaders still think in terms of traditional one-on-one mentoring when formulating mentoring programs, recent theoretical and empirical developments support the comparative virtues of *developmental networks* or *mentoring constellations*. One team of researchers defines a developmental network as "the set of people a protégé names as taking an active interest in and action to advance the protégé's career by providing developmental assistance."[43] Rather than place the entire burden for career and personal development on a single mentor, military organizations should recognize the value of multiple short-term mentors, peer mentors, mentoring groups, and online support communities. The more diverse an individual's developmental network, the greater the depth and breadth of career support.

Not All Mentoring Is Effective Mentoring. Officers and senior enlisted personnel often bemoan programmatic efforts aimed at making mentoring universal and mandatory. These leaders know that merely assigning everyone to a "mentor" does little to ensure effective and helpful developmental relationships. There are two primary problems here. First, there is tremendous variation in the motivations, interests, and skill levels of prospective mentors;[44] frankly, not just anyone can become an effective mentor. Many military members possess strong technical skills but poor interpersonal ones; they will probably not be effective mentors. Second, disgruntled, indifferent, or hostile mentors can wreak havoc on the lives and careers of junior personnel. Even a marginal mentor—one who disappoints or ignores protégés—can be worse than no mentor at all.[45] Military leaders must become selective when inviting personnel to become formal mentors; careful vetting and selection should be followed by thorough training and ongoing supervision and support.

Extrinsic Rewards Don't Work as Well as Intrinsic Rewards. Like many organizations, the military has failed to appreciate the power, and the fragility, of intrinsic motivation to mentor. In any organization, the most powerful, effective, and valuable mentors are those who are naturally invested in and personally committed to developing junior talent.[46] Intrinsically motivated mentors undertake the task for the internal pleasure of seeing protégés develop and succeed. But when an organization requires these same people to mentor and even makes performance appraisals contingent upon it, the magic, pleasure, and satisfaction of mentoring declines and may even be lost entirely.[47] It is clear that, in what is

known as the "overjustification effect" in behavioral science research, extrinsic rewards or requirements may temporarily increase frequency of the behavior while decreasing long-term interest and commitment; what was once done for pleasure now becomes drudgery.[48] Military leaders must wrestle not only with selecting excellent mentors but also with nurturing their intrinsic motivation and protecting them from burnout.

The Paradox of Program Oversight. Should military mentoring programs employ stringent program oversight or a hands-off approach? The answer to this question remains elusive. When protégés perceive strong management support for mentoring, they often report more positive career and psychosocial benefits and fewer negative outcomes.[49] Further, when formal mentoring programs adopt high-level facilitation strategies, engaging and overseeing the mentoring dyads frequently, protégés report higher levels of job satisfaction, organizational commitment, and even job performance. But here is the paradox: the more mentors perceive that they are being held accountable and scrutinized, the less willing they are to serve as mentors. Thus while greater perceived management support for mentoring predicts better outcomes, perceived mentor accountability results in less willingness of potential mentors to volunteer. "The negative relationship with mentor willingness to mentor, coupled with the likely low base rate of serious problems with mentors suggests that increasing mentor accountability may backfire on organizations by turning off potentially good mentors to mentoring."[50] Clearly, military program strategists will have to find the "right" balance among public support, oversight, and accountability.

NOT EVERYONE HAS WHAT IT TAKES

Mentoring matters; several decades of empirical research confirm that mentorships in nearly any setting offer measurable benefits to both protégés and those organizations that employ them. In comparison to their nonmentored peers, protégés are more rapidly promoted, better compensated, more confident, more competent, more likely to achieve leadership positions, and more inclined to serve as mentors in their turn.[51] But the vast majority of mentoring research pertains to more traditional or informal mentoring relationships, and there is nearly no published evidence regarding formal mentoring efforts in the military.

In this concluding section, we offer several recommendations for military leaders and human resources personnel tasked with developing, managing, and evaluating programmatic mentoring efforts for military personnel. These *best practice* considerations are designed to provide a way forward notwithstanding the sparsity of empirical evidence and of answers to lingering questions.

Develop a Master Strategy before Implementing Mentoring Programs. Rather than charge ahead with mentoring programs—especially those of the mandatory variety—wise leaders will first enter into a process to envision a corporate or military-wide mentoring strategy. A successful mentoring strategy will take into account organizational dynamics such as culture, hierarchical structures, traditions, and resources, as well as mentoring objectives specific to an entire military branch or a local command. An overarching military mentoring strategy will provide a clear rationale and framework for mentoring and, subsequently, a sense of cohesion among the varied programs within the military. Such a strategy will also help to reduce the probability that mentoring programs will be seen as passing fads, ultimately phased out.

Avoid Mandatory Programs: Facilitate a Sense of Choice. Nothing undermines the efficacy of a formal mentoring program more quickly than the sense that one has no choice about participating. The evidence is clear: when mentors and mentees both feel that they have clear choices—about both participating and whom with—both parties report more positive outcomes.[52] When third parties match mentoring dyads, matching criteria may be unrelated to interpersonal compatibility or, worse, entirely haphazard. Military program planners will do well to make participation in formal mentoring programs entirely voluntary. Moreover, they should solicit input from participants regarding preferences for specific interests, values, or characteristics in prospective mentoring partners. "By perceiving that they have a voice in the matching process, mentors and protégés may start to invest in the relationship prior to its official beginning; accordingly, both parties are likely to feel greater motivation to maximize the relationship."[53] This will require a culture shift in many military organizations. At present, many commands require each new member to be assigned a formal mentor; participation is not voluntary, and little consideration is given to issues of match. Further, few of these programs articulate an overarching strategy, desired outcomes, or relationship "contours," such as anticipated duration or frequency of contact.

Demonstrate Top-Down Support for Mentoring. Mentoring relationships will occur naturally in any context; mentoring in the military has flourished for centuries without command intervention. But if the military is serious about enhancing the quality of mentoring and extending the benefits of these relationships to a wider swath of the military population, it will be critical for key leaders to support mentoring efforts publicly. Organizational evidence shows that when leadership clearly communicates commitment to developmental relationships and even models effective mentoring behaviors itself, mentoring frequency and quality increase.[54] Nonetheless, and although vocal

public leadership support for mentoring, backed by appropriate resources, is key, military leaders must take care to avoid micromanaging mentors and requiring participation in formal mentoring programs.

Develop a Mentoring Continuum. Heretofore, many military programs have operated under the assumption that developmental relationships are dichotomous—that a person is either being mentored in a traditional one-to-one mentorship or that person is not being developed. In fact, considerable theoretical and empirical research supports a developmental network or mentoring constellation model that helpfully broadens definitions of mentoring. A continuum model bearing on talent development and retention in the military should focus on a range of programs designed to facilitate and reinforce career and personal growth. At one end of the continuum are career-development classes, short-term sponsorship at new duty stations, and other soft-sell approaches. At the other end of the spectrum are formal mentoring programs involving pairings between protégés and mentors designed to endure for substantial periods of time. However, even in the case of formal programs, it will behoove military planners to support flexibility and culture-specific program development in local commands; mentoring programs should be customized to cultural expectations, participant preferences, deployment schedules, and other relevant variables. Finally, the continuum should include mentoring tools, such as online and in-class training opportunities, and access to social networking communities to facilitate good communication over time.

Select Mentors Carefully. Not everyone has what it takes to mentor effectively. In the military culture, where frequent duty-station changes and expectations for equity in the workplace are fixtures, it is often assumed that personnel can easily be plugged in to new jobs and work settings with only cursory training. Although this strategy may be effective in technical situations, the same is not the case for interpersonal roles. Interpersonal skills like communication ability, empathy, listening, and emotional intelligence forecast greater success in the mentor role.[55] When developing formal mentoring programs, planners should consider vetting mentors and deliberately selecting those with demonstrated efficacy in other interpersonal relationships. Formal mentors who are disengaged, unreliable, exploitive, or lacking in essential communication skills may cause considerable harm to protégés and to the military's efforts at retention and talent development.

Develop High-Quality Training Programs for Mentors. It is unreasonable to expect military leaders—no matter how experienced—to understand fully the form and function of mentorship. Research in varied organizations indicates that the quality of mentor-training programs can literally make or break them. If

the military is serious about developing an excellent mentoring continuum, it is essential to create cutting-edge training in the art and science of mentoring at a central setting. In order to ease the burden on individual local commands, mentor-training workshops, online skill-development modules, and other resources should be created and distributed through the services' Web portals. Excellent mentor training can also be integrated into periodic leadership training often required in various schools required for promotion throughout the military.

NOTES

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REFLECTING ON FUCHIDA, OR "A TALE OF THREE WHOPPERS"

Jonathan Parshall

It is fitting that I first set pen to pixel for this article on 4 June 2009 (the sixty-seventh anniversary of the battle of Midway), because Midway will forever be tied to the name of Mitsuo Fuchida. As I write this, I confess to feeling a sense of ambivalence. It is true that in this article I hope to bury Fuchida, not to praise him. Yet it is equally true that as a student of the battle I would have loved to have had a beer with him, too. Fuchida was, by all accounts, lively, intelligent, and charismatic—qualities well reflected in his writing. Yet unlike, say, the case with a Civil War historian, the fact that there was at least some overlap in our lives (I was thirteen when Fuchida died in 1976) means that my fantasizing about knowing Fuchida is perhaps not completely far-fetched. So, while I am sure I would have asked him some rather pointed questions while hoisting that beer, I am equally certain that I would have had a wonderful time and would have been personally enriched by meeting him.

Sadly, however, this article has less to do with beer than with the use of personal accounts in the study of naval history, since it is doubtful that any one person has had a more deleterious long-term impact on the study of the Pacific War than Mitsuo Fuchida. Because of his misstatements, the American study of the Japanese side of such battles as Pearl Harbor and Midway (particularly the latter) was probably set back by decades. His untruths also demonstrate the tremendous power of self-serving ideas that may be wrong, but subtly support national self-images, particularly when carried forward by the mass media. This is a theme I will explore. I hope it will be instructive to other historians.

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It was during the research for our book *Shattered Sword: The Untold Story of the Battle of Midway* that my coauthor, Anthony Tully, and I gradually became aware of Fuchida's half-truths. Our quest was not to discredit Fuchida or to malign any historian who used him as a source. Rather, we were motivated by curiosity, our great interest in the Japanese Imperial Navy, and our wish to learn the truth. However, during the process of building a new foundation for our Midway study, it became clear to us that an important part of the old foundation had to be destroyed, for the simple reason that it was rotten. Things might have ended there, had it not been for Fuchida's other misstatements regarding Pearl Harbor, as well as his later war activities. It was only in the past few years that I became aware that Fuchida's mistruths actually spanned the entire conflict. Likewise, I have been constantly questioned in the course of giving presentations on Midway as to what Fuchida's likely motivations were for his actions. This has led to considerable ruminating, and not a little scratching of my balding pate. This article will hopefully answer some of those questions.

The bottom line is that Fuchida was a complex individual with complex motivations. What is clear is that his impact on the history of the Pacific War has been enormously damaging, in that his elaborations have been parroted for years and handed down as truth on the big screen, on television, and in countless Internet chat rooms. What makes this even more surprising is that although Fuchida was not a high-ranking officer, he created and influenced more of the postwar history of the Pacific War than perhaps any admiral on either side of the conflict. Let us turn to the three whoppers.

The first of Fuchida's tall tales concerns the attack on Pearl Harbor, which might be called "The Tale of the Missing Tank-Farm Attack." Down through the years, Western writers have duly noted that the Japanese navy let slip a potentially crucial opportunity to cripple the U.S. fleet at the outset of hostilities. In the months leading up to the war, the U.S. Navy carefully amassed 4.5 million barrels of fuel oil at Pearl Harbor, reasoning correctly that it would be the lifeblood of any future naval war against Japan.[1] The oil was stored at the base's two tank-farm complexes, primarily in aboveground tanks.

On the morning of 7 December, Japan's carrier striking force, the Kidô Butai, struck Pearl Harbor. In the course of their two attack waves, the Japanese accomplished two important goals. First, they crushed American land-based airpower, destroying or damaging around 350 of the 400 American aircraft on Oahu. This essentially eliminated the ability of the Americans to strike back effectively against the Kidô Butai. Second, the Japanese sank or badly damaged the majority of the American battleships in the harbor, thereby accomplishing (or so they presumed) their overall goal of destroying the U.S. Pacific Fleet's striking power. Such a victory, it was felt, would give the Imperial Navy free rein in the Pacific to

drive into the southern resource areas of Malaya, Borneo, and Java. Thereupon, having accomplished these key goals, the Japanese task force came about and headed home, ending the attack. However, the controversy over whether the Japanese should have attempted a follow-up strike was already beginning.

As the overall tactical commander in the air, Mitsuo Fuchida loitered in the area to assess the damage that his forces had caused. In Gordon Prange's landmark *At Dawn We Slept,* Fuchida is quoted as making the claim that during his return to the carrier *Akagi* he "mentally earmarked for destruction the fuel-tank farms, the vast repair and maintenance facilities, and perhaps a ship or two bypassed that morning for priority targets."[2] Upon landing, he allegedly pressed vigorously for a follow-up attack aimed at these targets, becoming "bitter and angry" when Admiral Chūichi Nagumo instead turned for home.[3] This same scene was mirrored in the movie *Tora! Tora! Tora!* thereby passing into the American collective memory.[4] In fact, it would appear that none of these events ever took place.

H. P. Willmott and his coauthors Tohmatsu Haruo and W. Spencer Johnson must be given credit for introducing these important clarifications into the Western literature. They noted in 2001 that the targeting priorities for the attack were as follows: land-based airpower; aircraft carriers; battleships, cruisers, and other warships; merchant shipping; port facilities; and land installations.[5] In other words, fuel tanks were at the very bottom of the list, and during the first two attack waves the Japanese had barely begun chewing their way into item number three on that list.

Despite postwar American incredulity, these targeting priorities made perfect sense in the context of the ultra-Mahanian Japanese fleet. Enemy combat assets were axiomatically more important than the logistical apparatus supporting those assets. Sea control devolved from sinking warships, not blowing up fuel tanks. While it is true that the Japanese were perhaps shortsighted in not having gauged the value of Pearl Harbor's fuel tanks and logistical facilities, they were also fighting a deliberately shortsighted war. If they could not bring the United States to the bargaining table in 1942, they were going to lose the war regardless. Yet there is little in the historical record on the American side to suggest that the immolation of Pearl's fuel stocks would have made the United States any more willing to bargain with the Japanese in the short term—the very nature of the initial assault precluded negotiation. All in all, it is clear that if a follow-on attack had been launched by the Japanese, it almost certainly would have been aimed at the large numbers of American cruisers, destroyers, and submarines left in the harbor.

With respect to Fuchida's tale, Willmott correctly points out, there was, first of all, no independent confirmation of Fuchida's claim that he had "earmarked"

logistical targets. Indeed, had he actually done so, this would have represented a complete renunciation of all his prior naval training and indoctrination. Second, Admiral Ryūmosuke Kusaka (Admiral Nagumo's chief of staff) made no mention of Fuchida's protestations in his own postwar account.[6] Instead, Kusaka states that Admiral Isoroku Yamamoto's alleged unhappiness over the result of the attacks, as well as condemnations from others regarding the failure to attack cruisers, other vessels, and the base's fuel tanks, were all criticisms heard later, nothing more than "afterthoughts of poor strategists."[7] Third, Commander Minoru Genda, the First Air Fleet's staff air officer, acknowledged in his own memoirs that he was aware of the *Tora! Tora! Tora!* scene but explicitly denied that such an incident had actually taken place or that any such proposal had been put forward by Fuchida.[8] Finally, Willmott notes that Fuchida had been interrogated in 1945 by the Americans and had been asked point-blank why there had been no follow-up attack at Pearl Harbor. Fuchida responded that at the time the extent of the degradation of American airpower on Oahu was unknown (and hence the potential threat to Japan's carriers was unknown) and that the destruction or damage to eight American battleships constituted success, as far as Combined Fleet was concerned. He made no mention of the fuel tanks.[9] Yet in 1963 he delivered an account to Prange that made himself appear a great deal more prescient than he apparently had been willing to reveal in 1945.

Interestingly, Fuchida's story continued morphing even after 1963. I was amused recently by a posting to an Internet group dedicated to the study of the battle of Midway. One of the group's members, a gentleman who knew many Midway participants personally, commented on the tank-farm oversight at Pearl Harbor as follows: "Over the years I got to know a retired captain who was aboard the USS *Enterprise* shortly after Midway. In his retirement years he became well acquainted with Reverend Fuchida. [Fuchida had become a Christian evangelist after the war.] [He] spent many hours with [Fuchida] and learned a lot that few were privileged to know. One of the things [he] learned is that the Japanese did not bomb the oil tanks because they planned to use them after they invaded Oahu."[10]

This is not the first time I have run across this particular spin on the oil tanks, and it is a truly incredible misstatement on Fuchida's part. John Stephan's well researched *Hawaii under the Rising Sun* makes it clear that during the decades leading up to the war the Japanese had intermittently mulled the notion of capturing Hawaii in the event of war. It is equally clear, though, that there were no concrete plans to this effect at the time of the attack on Pearl Harbor. Such operations had been discussed during planning for the attack but rejected by Yamamoto as too risky.[11] It is unlikely that the Imperial Army would have agreed to such a gambit in any case, given its general disinclination for operations

outside of China and its keen awareness of the lack of available assault shipping. Finally, of course, even if there had been such plans on the grand strategic level, a mere air group commander like Fuchida almost certainly would not have been privy to their details on 7 December. Yet Fuchida's "privileged" statements to this retired American captain played nicely to the whole American psychology relating to this battle.

Being on the receiving end of extremely nasty surprises is the nature of war. Sometimes, though, the enemy overlooks a temporary weakness and does not inflict quite as awful a beating as it could have. Such was the case with the tank farms at Pearl. In such cases it is tempting—after the fact, and when the war is safely won—to call the enemy stupid for having overlooked the obvious. Had the Japanese actually attacked and destroyed these facilities, the more pointed question would have been why the tanks were devoid of antiaircraft defenses, nonhardened, and relatively undispersed? While many postwar commentators would have us believe that these tanks were the very key to victory or defeat in the Pacific, apparently no one on the American side recognized that fact before the attack either. Yet Fuchida provided his listeners with a plausible lie that made U.S. oversights seem unimportant while simultaneously making himself appear smarter and more privy to inside knowledge of Japanese strategic deliberations than he actually was.

Regarding the treatment of source material, Fuchida's first whopper illustrates an important point that my coauthor, Anthony Tully, has repeatedly emphasized—witnesses' first accounts are often their best accounts. These reports tend to be terser, less embellished, and more to the point. This is especially important to note here because within the next decade the voices of most of the World War II veterans, the men and women who have firsthand insight into that incredible era, will be gone. It seems clear that Fuchida's most reliable account regarding Pearl Harbor was the first one he gave to his interrogators in 1945. Intriguingly, the very mode of questioning used by them may well have given Fuchida the clue that the fuel tanks were of larger interest to the Americans. Certainly by 1963 his story had changed dramatically. Fuchida was never slow to detect the sort of tales his audiences liked to hear.

The second whopper might be called "The Tale of the Fallacious Five Minutes," as it has to do with the climactic American dive-bomber attack at Midway. This stunning attack caught the Japanese completely by surprise, crippling three of their four carriers and effectively deciding the battle in America's favor. The events leading up to this attack can be roughly summarized as follows. Prior to the battle, the Kidô Butai had been instructed by Admiral Yamamoto to keep half of its aircraft ready for an antiship strike in case an American fleet was present in the area. Several hours into the proceedings on the morning of 4 June,

however, Nagumo ordered those reserve aircraft rearmed with land-attack weapons to deliver a second blow against Midway. Barely half an hour later, one of the two American carrier task forces, under Admirals Frank Jack Fletcher and Raymond Spruance, was detected, whereupon the Japanese reserve force's armament was ordered switched back to antiship weapons. A series of American air attacks then occurred, which were roughly handled but managed to keep the Japanese off balance. By 1020 on the morning of 4 June, according to Fuchida, the Japanese were finally ready to counterattack the Americans. A famous passage in Fuchida's *Midway: The Battle That Doomed Japan,* entitled "A Fateful Five Minutes," describes the scene as follows:

> One after another, planes were hoisted from the hangar and quickly arranged on the flight deck. There was no time to lose. At 1020 Admiral Nagumo gave the order to launch when ready. On *Akagi*'s flight deck all planes were in position with engines warming up. The big ship began turning into the wind. Within five minutes, all her planes would be launched. Five minutes! Who would have dreamed that the tide of battle would shift completely in that interval of time? . . . At 1024 the order to start launching came from the bridge by voicetube . . . and the first Zero fighter gathered speed and whizzed off the deck. At that instant a lookout screamed: "Hell-divers!" I looked up to see three black enemy planes plummeting toward our ship.[12]

This rendition of events—wherein Japanese carriers, their flight decks packed with attack aircraft just moments from takeoff, are caught at the last second and destroyed—has been echoed in every Western account of the battle since 1955, when Fuchida's book was first published in the United States. It is part of the common psyche concerning Midway, creating a mental image for every American who has ever studied the battle. Unfortunately, it is a mental image that is incorrect.

During the course of the morning's operations the Japanese carriers came under attack no fewer than five times by nine separate groups of American aircraft. Not surprisingly, Japanese flight decks were quite busy with combat air patrol (CAP) requirements. These activities, as well as the interspersed American attacks, made it nearly impossible for the reserve strike force to be readied on the Japanese flight decks—a process that took around forty-five minutes.[13] It was not until the publication of *Shattered Sword* that all these factors were brought together. In the course of our research, Tully and I were able to use the Japanese air group records for the carriers to show that the Japanese had been recovering CAP fighters aboard *Akagi* a mere fifteen minutes before it was bombed.[14] Recovering aircraft meant that its flight deck had to be empty aft, which in turn meant that there was no reserve strike force spotted. The official Japanese war history on the battle, *Senshi Sōsho,* explicitly states that at the time of the American attack there were no attack aircraft on the Japanese flight decks,

only combat air patrol fighters. Indeed, the Zero fighter whizzing off *Akagi*'s flight deck in Fuchida's dramatic passage can be shown in *Akagi*'s own air group records to have been a CAP fighter, sent aloft to foil the ongoing American air attacks. We even know the pilot's name.[15]

Thus, Fuchida's entire rendition of the climax of the most important naval battle in American history was a lie. The Japanese were nowhere near ready to counterattack at this time. The truly stunning thing about this, however, is that it essentially paralyzed the American study of this pivotal battle for the better part of fifty years. Fuchida's tale was in English, while the operational records that belied it were in handwritten Japanese stored on microfilms. For this reason, American historians (perhaps not surprisingly) simply accepted Fuchida's account verbatim and declined to look further. It did not help matters that Fuchida had become great friends with Gordon Prange, whose best-selling *Miracle at Midway* (1983) became, hands down, the most important English-language account of the battle, one whose details were subsequently incorporated into many other Western histories. Intriguingly, Fuchida's reputation as a reliable witness was demolished in Japan as soon as the *Senshi Sōsho* volume on the battle came out in 1971. Again, because of the difficulty of the source materials, most American historians were not even aware of the value of *Senshi Sōsho,* let alone what it said about Midway in particular, until around the turn of the twenty-first century.

I am convinced that one reason why Fuchida's tale endured in American literature is that it tapped into an underlying national self-image that we Americans have of the battle. Americans have always identified with tales of plucky underdogs prevailing against the odds. The story that Fuchida fed us was oriented along those lines. With such a "reliable" witness providing ready-made images for any screenplay, why would anyone think to look further into the (incredibly difficult and tedious) Japanese sources? At the same time, Fuchida subtly shifted the causes for Japan's defeat away from individuals and more toward what might be termed a "fates of war" explanation, which is more acceptable to Japanese societal sensibilities. This made sense in a book written immediately after the conflict by a former Japanese naval officer trying to salvage some honor from the wreckage of both a career and a lost war. Indeed, Fuchida's motivations were probably along the same lines as those of individuals like Major General F. W. von Mellenthin, whose famous book *Panzer Battles* (1956), along with memoirs by other former Wehrmacht commanders, not only helped orient the terms of study of the eastern front along essentially German lines for the better part of fifty years but also implanted the myth of outsized German martial prowess that reverberates in some audiences to this day.

Fuchida's second whopper illustrates an important point in the use of sources—that operational records (dull as they are) form the bedrock of any

military historical account and must be given weight at least equal to that given individual observations. If individual observations provide the narrative material, operational records should provide the foundation for understanding the larger picture into which the narrative must fit. Had American historians had the good sense to use the Japanese operational records that were available to them as early as the 1960s, Fuchida's tales would never have been as pervasively accepted. Instead, his word was accepted essentially as holy writ until 2005.

Fuchida's third whopper is "The Tale of the Privileged Observer." In some ways it is the most egregious of the three, because unlike his tales from the Kidô Butai there were literally thousands of potential American witnesses to this particular story, who might have come forward to debunk it. Yet this particular whopper was the last of the three to be uncovered, having been exposed only in 2009. In 2008 I was a consultant to a writer working on a screenplay for a motion picture, a major portion of which deals with the life of Fuchida and his postwar conversion to Christianity. As part of that effort, I came across Fuchida's claim, made in Prange's *God's Samurai,* that he had attended the surrender ceremony in Tokyo Bay aboard the USS *Missouri*.[16] This statement triggered my by-now finely honed Fuchida radar. Why, I asked myself, would Fuchida have been aboard the *Missouri*? What possible business did he have there?

Fuchida's explanation was that he had been in charge of arranging transportation for the Japanese surrender delegation and had then been allowed to come aboard with a group of Japanese army and navy liaison officers to observe the proceedings from a perch in *Missouri*'s superstructure. This flew in the face of common sense. The photographic evidence of the ceremony makes two things quite clear. First, except for the honored Allied dignitaries whose direct participation was required, this was an almost exclusively U.S. Navy affair. Second, it was standing room only, with *Missouri*'s sailors jammed into every available space to observe the proceedings. What possible motivation would any American sailor have had to offer up his perch on this grand event (one that he had left home and family for to fight for months or years) to some unknown Japanese officer who happened to show up at the last minute? Likewise, why would anyone have allowed someone like Fuchida, presumably in the company of other Japanese military officers, to wander into the command spaces of the flagship of the U.S. fleet? If he was there, why were there no photographs of him or the rest of the liaison party, when we have numerous photographs of the surrender delegation coming aboard? The more I thought about it, the more I came to believe that no other Japanese besides the surrender delegation could have been there.

However, it turns out I was wrong. While looking over some of the photographs of the event, an image surfaced of someone who was clearly a Japanese male, dressed in tropical military garb and sporting a camera, who was not a

member of the surrender delegation. The acquaintance who uncovered this image argued that since we now had photos of at least one Japanese outside the delegation, perhaps Fuchida could have been there as well. This, in turn, raised the ugly prospect of having to try to identify every face in every photograph of the ceremony to prove that Fuchida was not there, when in all fairness the onus should have been on Fuchida to prove his rather incredible attendance claim.

Salvation in this case was provided by Martin Bennett, the screenwriter, who very sensibly wrote to the Battleship Missouri Memorial on the matter. Michael Weidenbach, the museum's curator, returned the following testament of the *Missouri*'s commander, Stuart Murray, that not only verified Fuchida's absence but also provided the identity of the unknown Japanese in the photographs. Captain Murray noted,

> The Japanese were allowed to have a newsreel photographer. My recollection is only one, but there might have been two. But my orders since they only had the limited number, he was assigned a position on the 40mm gun platform on the starboard wing of the verandah deck [*sic*]. Two Marines had been assigned him to keep an eye on him because I felt there was a possibility he might try to pull a fancy trick with his camera or something and be a hero or a kamikaze by taking with him some of the central people. So these two Marines each had a hand on his leg and put him in his place and told him to stay there. . . . [T]hey had their other hand on the butt of their Colt .45. . . . [T]here was no question that [he] got the word.[17]

Captain Murray's account also makes it clear that security aboard the ship—even for Allied guests—was very tight, reflecting (in the words of historian Alan Zimm) the Navy's "corporate culture" for handling such events, which emphasizes positive control and overorganization.[18] Indeed, during the ceremony itself, a Russian photographer who tried moving to a different position in order to get a better view was physically tackled by one of the Marine guards and escorted back to his appointed spot.[19] As Weidenbach pointed out, if Fuchida had been aboard the *Missouri* in any capacity whatsoever, "his presence would have been noted, and his placement would have been noted in the official records . . . and would have been strictly monitored and recorded."[20]

The lesson from the third whopper is yet another reminder (if any were needed) that proving a negative is oftentimes a lot harder than proving a positive. However, it is the historian's job to produce positive evidence to support the claims that are made by the participants in our narratives. In this case, the onus was on Fuchida to support his rather incredible claims. His story, while superficially plausible, failed when subjected to the weight of the other positive evidence we have on this highly documented ceremony. Despite the presence of literally thousands of Americans who might have seen him, photographed him, or recalled his presence, we still have nothing more than his word that he was

there. Thus, by any reasonable measure of proof, Fuchida was not aboard the USS *Missouri* for the ceremony.

The reader would be right to ask at this point: Why did Fuchida make this stuff up? What was the motivation? Here we must set aside strictly objective historical enquiry and venture into amateur psychology (a prospect that always makes me queasy). However, as someone who has "lived with" Fuchida now for a number of years I would make the following observations. A glimpse into the inner character of the man is revealed in the movie *Tora! Tora! Tora!* for which both Prange and Fuchida were technical advisers. During one scene, near the beginning of the movie, Fuchida lands his plane on the carrier *Akagi*. Dismounting, he is immediately surrounded by other aviators. Fuchida tells them they'd better treat him well, because he is their new air group commander. Surprised by this news, one of the pilots asks how he rated another promotion. Fuchida responds, to the general hilarity of all assembled, "Well, exceptional people get exceptional treatment!" I believe this illustrates something central about the man. Fuchida considered himself exceptional. Above all else, he wanted to be perceived as being intelligent and insightful, and if that meant depicting himself as armed with wisdom that could only have been developed in hindsight, so be it.

After the war, Fuchida enjoyed the company of Americans, attending many Pearl Harbor and Midway events. Indeed, Fuchida may have been more popular in America than in Japan. Furthermore, by his conversion to Christianity and ordination, Fuchida was vested with the aura that we typically confer on all clergy. We are taught in Sunday school that priests do not lie, that their quests for higher truths compel them to convey mortal truths faithfully as well. These societal beliefs are particularly in evidence with members of the war generation. I have been called to task more than once by World War II veterans who express incredulity that a man of the cloth like Fuchida could have lied about his wartime experiences, despite the many sordid modern examples we have of clerical misadventures. Furthermore, in the eyes of veterans, Fuchida, despite being an enemy during the war years, was still (as Bill Mauldin put it) a member of "The Benevolent and Protective Brotherhood of Them What Has Been Shot At," whereas historians of the postwar era are decidedly not.[21] Such beliefs are difficult to overturn.

Fuchida was hardly alone in having falsified the record, of course. Veterans of every war, either intentionally or unintentionally, have misrepresented the events they participated in, until the very term "war story" is interchangeable with a tale of dubious veracity. Any military historian who has interviewed veterans has learned to be cautious in accepting their narratives. Time, distance, and the stress of combat can all distort a participant's recollection of events,

even setting aside the possibility of intentional misstatements. However, it is not often that a veteran has the chance to distort the history of the two most important battles of the Pacific War, throwing in the surrender ceremony for good measure. Nor do many veterans get to see their personal versions of history enshrined in not one but two major motion pictures *(Tora! Tora! Tora!* and *Midway)*, thereby ensuring that their distortions will be incorporated into the common wisdom of the most important conflict of the twentieth century. In this sense Fuchida was unique and his impact absolutely unprecedented.

How can historians prevent this? The great French historian Marc Bloch wrote in *The Historian's Craft* that "from the moment when we are no longer resigned to purely and simply recording the words of our witnesses . . . cross-examination becomes more necessary than ever. Indeed, it is the prime necessity of well-conducted historical research."[22] Fuchida's fables are a reminder of what happens when this sort of basic "blocking and tackling" is neglected. Yet additional narrative accounts are not necessarily required for this cross-examination. In the case of Midway, it was not another person calling our attention to Fuchida's "fateful five minutes" invention by giving a contradicting report but rather ships' flight records, as well as a sufficiently detailed understanding of how Japanese flight deck operations were conducted, that led to the inevitable conclusion that Fuchida had not told the truth. Ships' logs, technical plans and diagrams, maps and geographic-information databases, weather reports, photographs, radio intercepts, personnel records, and military doctrinal tracts—all of these and more are sources that can be used to augment (and cross-check) narrative sources. The key to combating overreliance on a single source remains, as ever, the development of a portfolio of varied sources that can be compared to each other.

It is unlikely that Fuchida's legacy will be overturned any time soon, perhaps not even within my lifetime. Yet as Bloch said, "The knowledge of the past is something progressive which is constantly transforming and perfecting itself."[23] Therein lies the promise of a brighter future. The fundamental goal of history rightly remains not the discrediting of Fuchida but rather the perfection of our collective knowledge about the events he witnessed. Pearl Harbor and Midway still deserve study and will receive the attention they rightly deserve. That attention, however, will be increasingly directed via an array of methodologies and sources, not just a simplistic compilation of narrative accounts whose wellspring is now quickly running dry. The legacy of this most profound and complex of wars deserves no less sophisticated and holistic a historical approach.

NOTES

1. H. P. Willmott, *Empires in the Balance: Japanese and Allied Strategists, April 1942* (Annapolis, Md.: Naval Institute Press, 1982), p. 140.
2. Gordon Prange, *At Dawn We Slept: The Untold Story of Pearl Harbor* (New York: McGraw-Hill, 1981), p. 541.
3. Ibid., pp. 542–47.
4. As a side note, another key scene from this movie, wherein Admiral Yamamoto delivers the famously prophetic line, "I fear we have wakened a sleeping giant," appears to have been purely the concoction of a (very talented) Hollywood screenwriter. Again, by virtue of being part of a major motion picture, this scene has entered the layperson's historical lexicon, even though Yamamoto apparently never uttered any such thing.
5. H. P. Willmott, Tohmatsu Haruo, and W. Spencer Johnson, *Pearl Harbor* (Havertown, Pa.: Casemate, 2001), p. 64.
6. Donald M. Goldstein and Katherine V. Dillon, eds., *The Pearl Harbor Papers: Inside the Japanese Plans* (New York: Brassey's, 1993), p. 162.
7. Ibid.
8. Willmott, Haruo, and Johnson, *Pearl Harbor,* pp. 156–57.
9. Ibid., p. 157.
10. Bill Vickrey, post to Battle of Midway Roundtable, 29 March 2009, home.comcast.net/~r2russ/midway//Backissues/2009-14.htm.
11. John Stephan, *Hawaii under the Rising Sun: Japan's Plans for Conquest after Pearl Harbor* (Honolulu: Univ. of Hawaii Press, 1984), pp. 82–83, 85.
12. Mitsuo Fuchida, with Masatake Okumiya, *Midway: The Battle That Doomed Japan* (Annapolis, Md.: Bluejacket, 1951), pp. 155–56.
13. Jonathan Parshall and Anthony Tully, *Shattered Sword: The Untold Story of the Battle of Midway* (Dulles, Va.: Potomac Books, 2005), p. 230.
14. Ibid., p. 501.
15. Ibid.
16. Gordon Prange, with Donald M. Goldstein and Katherine V. Dillon, *God's Samurai: Lead Pilot at Pearl Harbor* (Dulles, Va.: Potomac Books, 2003), pp. 174–75.
17. Capt. Stuart Murray, account, www.ussmissouri.com/sea-stories-mo-captain. The veranda deck is, in fact, precisely where the photographs of the event show this Japanese cameraman.
18. Alan Zimm to Parshall, 1 April 2009.
19. Murray account.
20. Michael Weidenbach, curator, Battleship Missouri Memorial, correspondence with Martin Bennett, 5 January 2009.
21. Bill Mauldin, *Up Front* (1945; repr. New York: W. W. Norton, 2000), p. 100.
22. Marc Bloch, *The Historian's Craft* (New York: Knopf, 1953), p. 64.
23. Ibid., p. 58.

REVIEW ESSAY

ISRAEL: A REVOLUTIONARY MIRACLE IN PALESTINE

Mackubin Thomas Owens

Adelman, Jonathan. *The Rise of Israel: A History of a Revolutionary State.* London: Routledge, 2008. 269pp. $37.95
Cohen, Stuart A. *Israel and Its Army: From Cohesion to Confusion.* London: Routledge, 2008. 210pp. $39.95

For much of the world, Israel remains a controversial, indeed reviled, state. It has been described as a "racist, colonialist" nation; the subagent of American or Western imperialism; a "stepchild" of the Holocaust or the Jewish Diaspora; the "brutalizer of Arabs"; and an intransigent enemy of regional peace in the Middle East. However, as Jonathan Adelman shows in *The Rise of Israel,* there are serious shortcomings in all these descriptions of the Jewish state.

Adelman does more than merely debunk the negative stereotypes of Israel arising from the "Arab victimization narrative" and post-Zionism. In this interesting and informative book he argues that the creation and survival of the Jewish state constitutes something of a miracle. The fact is that over the past several centuries, only some 5 percent of the four thousand peoples ("nations") of the world have achieved statehood. Most have done so because they had large populations constituting demographic majorities within given regions, populations that possessed a common culture, language, history, and religion. Accordingly, they were able to predominate in single areas for many centuries. The Jews who created the State of Israel lacked these normal attributes of statehood. So how did Israel come into being, and why did it flourish against all odds?

Dr. Owens is associate dean of academics for electives and directed research, and a professor of national security affairs at the Naval War College. He also is editor of Orbis*, the quarterly journal of the Foreign Policy Research Institute. His numerous articles on national security affairs have appeared in a variety of publications, and he is currently working on a book about American civil-military relations. Dr. Owens served in the Marine Corps and Marine Corps Reserve 1964–1994, and in both the executive and legislative branches of the U.S. government.*

One of the strengths of this work is its treatment of Israel in a comparative context. Some of the most telling questions that Adelman seeks to answer are these: Why was it that among all the minorities of the Ottoman Empire (the Palestinian Jews, Lebanese Christians, Armenians, and Kurds), only the Jews were able to obtain a powerful state, when the others seemed better situated in 1917? Why did a state besieged by powerful and numerous enemies avoid becoming an authoritarian, militarist society, such as Prussia or Sparta?

The fact is that if in 1900, 1917, or 1942 it had been predicted that Israel would emerge as a first-world regional power, the idea would have been laughed to scorn. Even in 1948, after Israel had achieved its independence, the CIA predicted that the Jewish state would not survive for more than two years. Indeed as late as 1967 and 1973 (when, on the third day of the Yom Kippur War, Defense Minister Moshe Dayan had expressed his fear that "the Third Temple is falling"), Israel's survival was not assured.

Adelman reminds the contemporary reader that the Jews had to overcome immense obstacles to establish and maintain the State of Israel. The Jews themselves were a weak and disempowered people, dispersed over the face of the earth. For the most part, they did not possess anything resembling a martial tradition. They faced numerous, powerful, and determined enemies: the great powers (tsarist Russia, the Ottoman Empire, Nazi Germany, the Soviet Union, and even the British Empire, from 1937 to 1949); the Arab states; strong transnational religious movements (the Roman Catholic Church, the World Council of Churches, Islam); international organizations, especially the United Nations after 1951; most of the third world after 1967; and, most potently, global anti-Semitism.

However, not all obstacles to the creation and survival of Israel were external. Many arose from among the Jews themselves. Indeed, Zionism—the movement calling for a return of the Jewish people to Palestine—was not universally accepted among Jews. Even Zionism itself suffered from internal divisions.

Nonetheless, Israel survived and flourished. Adelman attributes this outcome to several factors. The first of these was a unique socialist revolution. Because of the conditions facing the Jews during the mandate period and the early years of independence, Israel was able to avoid the radical, violent, and repressive nature of central state–socialist revolutions such as those that took place in Russia and China. However, a second revolution also took place in Israel, beginning in the 1990s, this one capitalist. The impact of this second revolution is illustrated by the astounding fact that oil-poor Israel, with only 2 percent of the population of the oil-rich Arab-Persian Middle East, accounts for 33 percent of the richest people in the region.

Other factors contributing to the survival of Israel include the greatness of such Israeli leaders as David Ben-Gurion and Golda Meir, and the Jewish will to survive, reinforced by the Holocaust and the proclaimed intention of the Arab states to drive Israel into the sea. The democratic nature of Israel was a blessing, especially since the Arabs sided time and again with authoritarian, repressive, and ultimately losing powers, from Nazi Germany to the Soviet Union. Ultimately, argues Adelman, Israel came into existence and flourished "because of the creativity, drive and determination of the Jews" themselves.

One of the anomalies that Adelman points out is the fact that the small State of Israel, surrounded by enemies bent on its destruction, has remained a vibrant democracy rather than devolving into an authoritarian or militaristic polity. Much of the answer is to be found in the role of a key institution within Israel, the Israel Defense Forces (IDF), which is the topic of Stuart A. Cohen's *Israel and Its Army*.

Civil-military relations in Israel differ greatly from those in the United States. For Americans, the preferred relationship between civilian policy makers and the uniformed military is what the late Samuel Huntington called "objective control" of the military. In this arrangement—an ideal type that is rarely attained in practice—civilian authorities grant the professional officer corps autonomy in the realm of military affairs, in return for which the professional military remains politically neutral and voluntarily subordinate to civilian control.

Even allowing for the fact that U.S. civil-military relations rarely correspond to Huntington's ideal type, Israel's civil-military boundaries are far more porous than those in the United States; the IDF has played parts in education, nation building, and land settlement. The traditional role of the IDF has been more central to Israeli life than that of the U.S. military to American life in general.

The creation of a national army from preindependence military arms like Haganah and Palmach was, like the creation of Israel itself, something of a miracle. To begin with, there was no Jewish military tradition upon which first the Yishuv (the Jewish community in Palestine) and later Israel could draw, at least since biblical times. In addition, many of those who had to be absorbed and acculturated by the IDF were illiterate immigrants with nothing like military experience. Nonetheless, the IDF prevailed in the War of Independence and gained a reputation for near invincibility in 1967. Its reputation was tarnished a bit in 1973, when it suffered a serious strategic surprise, but the IDF recovered the initiative and once again prevailed.

Cohen traces the decline of Israel's love affair with the IDF, the reputation of which reached its nadir in the summer of 2006 in the wake of the Second Lebanon War against Hezbollah. That war revealed many deficiencies in the IDF;

however, these problems had become apparent long before that conflict. Cohen attributes them to the changing operational landscape—the shift from state-on-state warfare to irregular conflict, such as the intifada; an overreliance on technology, a mistake the U.S. military also made during the 1990s; and, most significantly, societal changes within Israel, the post-Zionist version of "the routinization of charisma," in which "unquestioning commitment to ideals that in the past seemed sublime gives way to frustration with the ordinariness of the new order, which therefore itself becomes the butt of critical inquiry."

After offering a no-holds-barred critique of the IDF, Cohen ends on a note of optimism. While problems are likely to persist, he believes, reforms make it likely that the IDF can correct their deficiencies. That is a good thing, because the threats that Israel faces are not likely to disappear soon.

BOOK REVIEWS

NODES, NETWORKS, PLATFORMS, AND PICTURES

Friedman, Norman. *Network-centric Warfare: How Navies Learned to Fight Smarter through Three Wars.* Annapolis, Md.: Naval Institute Press, 2009. 424pp. $32.95

Norman Friedman's latest book, *Network-centric Warfare,* should find a place on the shelves of all students of naval warfare. It provides a wealth of insights into contemporary and future wars, by focusing on networks—the connection between weapons and systems, the front line and the rear echelon, decision makers and analysts, and domains of warfare from land to sea to air to space to cyberspace. Friedman's central thesis is that network-centric warfare (NWCW) as articulated by advocates like the late vice admiral and former Naval War College president Arthur Cebrowski is really "picture-centric warfare"—that is, as he explains, warfare is "based on using a more or less real time picture of what is happening." Friedman then demonstrates the evolution of picture-centric/network-centric warfare by examining naval programs from British admiral Sir John Fisher's Mediterranean surveillance program at the beginning of the twentieth century to the sound surveillance system (SOSUS) in the latter half of that century.

Whether one agrees with Friedman or not, his account challenges many past and current conceptions of warfare and represents a frontal challenge to theorists of network-centric warfare. As such, this work deserves to be read and responded to by scholars and analysts alike.

Network-centric warfare and its precepts, for better or worse, acknowledged or not, are now embedded in much of current thinking about military operations in both the United States and countries as diverse as the United Kingdom, Sweden, Singapore, and China. At the most basic level, proponents of NWCW urge strategists, planners, operators, and even members of the acquisition community to think about war fighting in terms of nodes and networks rather than of weapons platforms. At its most simple, this means that developing, sustaining, and protecting connectivity (i.e., networks, ranging from radios to fiber optics) is at least as important as ships, tanks, aircraft, satellites, and sensors. Everything from combat power and combat effectiveness to logistical efficiency is

improved by taking full advantage of the computer and telecommunications advances made over the last half-century. Friedman challenges NWCW proponents by redefining their central arguments about the relationship between nodes and networks. In effect, he argues that the "picture" is more important than the network itself for conducting military operations. The network serves the development of ever more complex and, presumably, accurate "pictures" available to operators and analysts.

If I have a problem with Friedman, it is with his definition and explanation of network-centric warfare, at least the variant espoused by Vice Admiral Cebrowski. (Full disclosure: Vice Admiral Cebrowski was the president of the Naval War College when I was hired there, and I enjoyed more than a few hours hashing out the intricacies of network-centric warfare in his presence.) I do not agree that picture-centric warfare is equivalent to network-centric warfare: the "pictures" highlighted by Friedman constitute only one dimension (albeit an important one) of the theory and practice of network-centric warfare. Another relatively minor quibble is that although the book's title refers to three world wars, and indeed the narrative contains analysis and examples from all three—World War I, World War II, and the Cold War—this is somewhat misleading. As the table of contents suggests, the real structure underlying the work is instead three *technological eras,* those associated with radios, radar, and computers.

Network-centric Warfare is not an easy read. It is filled with jargon and focuses largely on relatively obscure developments. It is not a popular history or an anecdote-filled volume designed to thrill devotees of warfare. It lists nearly fourteen pages of acronyms!

These complaints aside, this book is worth buying, reading, and studying. It is a most useful corrective to histories focusing on specific wars, campaigns, battles, personalities, or weapons systems.

PETER DOMBROWSKI
Naval War College

Finkelstein, Sydney, Jo Whitehead, and Andrew Campbell. *Think Again: Why Good Leaders Make Bad Decisions and How to Keep It from Happening to You.* Boston: Harvard Business School, 2008. 204pp. $27.95

Bad decisions are common, but bad decisions by good leaders are perplexing. This book delves into the root causes of faulty decisions made by leaders who should have known better. The reader will be intrigued by the cognitive dynamics underlying defective decisions. Neuroscience is making aspects of traditional wisdom about decision making obsolete. It turns out that rational decision making is not really all that rational.

The book's lead author, Sydney Finkelstein, teaches at Tuck School of Business, Dartmouth, and has written extensively on leadership. His coauthors both earned their MBAs at Harvard and teach at the Strategic Management Center at Ashridge Business School, outside London. Finkelstein also authored *Why Smart Executives Fail.*

The authors identify two common components in the flawed decisions they studied: judgment error and the absence of a corrective process. One example given is the case of Matthew Broderick, a retired Marine Corps general who was a seasoned decision maker in the Federal Emergency Management Agency's Operations Center during Hurricane Katrina. His experience had taught him that initial reports from a crisis area are often exaggerated and inaccurate. Twelve hours after the hurricane hit New Orleans, Broderick received conflicting information about breached levees and extensive flooding. His rational analysis was that the situation was not dire, and he went home. By the following morning, the magnitude of the catastrophe was unequivocal.

Broderick was a competent leader with proven crisis experience, so why did he assign great validity to one source of information while dismissing data from other credible sources? The authors contend that his misjudgment resulted from two cognitive errors: he incorrectly assumed that the Katrina situation "pattern-matched" his prior crisis experiences; and he exacerbated the error by "emotionally tagging" the information from his preferred source, the Army Corps of Engineers. Pattern recognition and emotional tagging are powerful subconscious influences on decision making.

Based on the authors' research, four "red flag conditions" are evident in defective decisions: misleading experiences, misleading prejudgments, inappropriate self-interest, and inappropriate attachments. A red-flag condition forecasts vulnerability to cognitive bias. Notable examples of flawed decisions made by exceptional military, business, and government leaders richly illustrate the latent peril in red-flag conditions.

The elements at play are subtle and subconscious. For example, the persistent tug of personal self-interest is hard to detect, because a self-serving bias is implicitly acceptable in our culture. Self-interest becomes inappropriate when it is unacknowledged and there is no self-awareness. It corrosively distorts the decision process. The authors' research found that inappropriate self-interest contributed to flawed strategic decisions in more than two-thirds of their research cases.

The book is repetitive at times, but that minor distraction is more than offset by its insightful advice and practical decision-process safeguards. The authors refer extensively to academic cognitive research and challenge the invincibility of "rational and analytic" decision making, especially for leaders in complex situations where information is ambiguous.

HENRY KNISKERN
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Horner, Charles. *Rising China and Its Postmodern Fate: Memories of Empire in a New Global Context*. Athens: Univ. of Georgia Press, 2009. 224pp. $34.95

This book connects China's past, present, and future and places them in a larger, evolving context. Horner's work is nothing short of a tour de force of world intellectual history as projected and contested on the canvas that is China. Eloquent and engaging, it is pointed without being overly

judgmental, incorporating an absorbing literature review that is surprisingly cogent, considering the sheer amount of information conveyed.

Horner takes a bold and transparent approach: his "hypothetical history of the future" analyzes the past in the context of contemporary politics and debates, as post-1978 market reforms have opened up intellectual discourse. He explores the international dimensions and domestic discourses of sinology: "China's intellectual scene is now among the most vibrant in the world, bringing together . . . competing ideas both foreign and domestic." The author likewise reveals his own intellectual journey. This self-conscious approach is valuable, since perhaps nowhere other than in China has history been so mined, misused, analyzed, exploited—and remained a subject of such fascination and debate.

Horner explores longtime Chinese bureaucratic practices of devising norms and lessons from history, offering examples from the Yuan, Ming, and Qing dynasties. Although all are invoked as positive or negative models today, "What they stand for now is very different from what they were once thought to be." More broadly, "China once interpreted its own past in light of yesterday's failures, but now it is coming to a new appreciation of its past in light of today's successes." China's usable past includes long if uneven "maritime and naval traditions" that generated national prestige and support for the ruling regime, supported vigorous shipbuilding and trade, and incorporated Taiwan. It is hard to overlook the relevance, and resonance, of such issues today. In a useful comparative example of the influence of history, Horner likens Zheng He's voyages to the Apollo moon landings in the long-term transformations they brought in domestic opinion regarding national capabilities, despite their abrupt terminations.

Strategic debate in the Qing dynasty regarding the value of China's western territories reveals enduring tensions in its strategic orientation between continental and maritime frontiers and between factions advocating their respective emphases. Horner quotes one official, whose vividly expressed viewpoint carried the day (perhaps to Beijing's detriment, in retrospect): "The maritime nations are like a sickness of the limbs, far away and light, but Russia is like a sickness of the heart and stomach, nearby and dangerous."

Horner tackles the enduring puzzle of why China's leaders failed to anticipate maritime threats from Western powers and finds that the Qing government devoted insufficient attention to diplomacy and intelligence abroad and failed to consult knowledgeable overseas Chinese. Nevertheless, by the dawn of the twentieth century, China's intelligentsia had achieved a deep understanding of the sources of Western power and "self-understanding." Significant bureaucratic-curricular reforms proved insufficient, however: a "painful consensus" emerged that "a new intellectual regime . . . would have to consolidate its power before the country's recovery of national power could begin in earnest."

Then, as now, there is widespread determination to make China a prosperous great power but uncertainty regarding how to do so. Questions abound: How should China relate to the international system? How should it

work with the existing hegemonic power of the day? Also, to what extent can, and should, Beijing further its interests militarily? Horner sees this as part of a more fundamental question and cites a Chinese intellectual: "Do we Chinese have the possibility or necessity to form our own discourse of modernity, or do we open a 'branch office' of the Western discourse of modernity in China"?

I commend this book to general readers in search of intellectually stimulating but accessible material, to teachers of survey courses at the advanced undergraduate or graduate level, and to specialists seeking insights into their own studies of Chinese history.

ANDREW ERICKSON
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Alterman, Jon B., and John W. Garver. *The Vital Triangle: China, the United States and the Middle East*. Washington, D.C.: CSIS, 2008. 144pp. $16.95

In *The Vital Triangle* Jon Alterman and John Garver present a compact analysis of relations among China, the United States, and the countries of the Mideast. Alterman directs the Middle East Program at the Center for Strategic and International Studies, and Garver is a professor of international affairs at Georgia Tech. They deliver a focused, 133-page narrative, peppered with charts illustrating statistical trends in the energy and arms trades. Based on interviews and conferences with scholars in China and the Mideast, a review of English- and Chinese-language secondary literature, and news reporting, this study is the first attempt at a comprehensive, "three-dimensional" study of Sino-U.S. relations in regard to the vital Middle East.

Most important, the authors explain how Beijing's keen awareness of its limited power and its recognition of the importance of Sino-U.S. trade significantly restrain Chinese opposition to U.S. Mideast strategy. Despite China's growing economic stake in the region and declaratory opposition to U.S. "hegemony," Beijing gives avoiding direct clashes with Washington higher priority than it does its relations with regional states. A key example is China's decision in 1997 to scale back significantly cooperation with Iran on nuclear and missile technologies in response to pressure from the Clinton administration. The authors demonstrate how Beijing paradoxically combines a practical policy of risk avoidance with the rhetoric of antihegemonic solidarity, allowing China to reap economic and political profits from Western protection of the flow of Mideast energy and, simultaneously, from regional resentments of that same Western intervention. Beijing's observations of rough Soviet and American experiences in Mideast geopolitics reinforce its belief in the cost-effectiveness of a low regional security profile.

The book concludes with some reasonable, if not exactly groundbreaking, recommendations for managing frictions in the China–United States–Mideast triangle. Of particular interest to the naval community are those focused on securing the maritime domain within the Persian Gulf. Alterman and Garver advocate collaboration among China and Western and Persian Gulf littoral states on ship identification protocols, cargo security initiatives, and multilateral

search-and-rescue operations. The authors argue that because these steps are limited, practical, and focus on the interests of all sides, China may be willing to engage here, and that further, because of Tehran's desire to stay on good terms with Beijing, Chinese participation might induce some restraint on Iran's part.

The Vital Triangle is well worth reading. It provides a useful contextual framework for placing in perspective overhyped news reports on Sino-U.S. disputes over Chinese arms deals with countries in the region, Beijing's growing concerns about ensuring the security of its oil imports, threats from Egypt and Saudi Arabia that they may seek Beijing's political-military support as an alternative to Washington, and attempts by Iran to appeal to China as a counterweight to Western pressures. Because the book cogently illustrates Beijing's reluctance to take risks or choose sides and thereby diminishes the credibility of China as a counterweight, Americans working diplomatically in the Mideast could even find it useful to provide copies to their host-country interlocutors the next time they try to play "the China card."

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(The views and opinions expressed in this review are the author's alone and do not reflect the official policy or position of the Defense Intelligence Agency, Department of Defense, or U.S. government.)

Jones, Seth G. *In the Graveyard of Empires: America's War in Afghanistan*. New York: Norton, 2009. 414pp. $27.95

In an August 2009 *Wall Street Journal* article, Seth Jones described meeting villagers in Afghanistan who had never heard of President Hamid Karzai and even thought the U.S. military forces he was traveling with were Soviets, "not realizing that the Soviet army withdrew in 1989." This lack of knowledge may seem implausible in an era of cell phone and Internet communication, but Jones offers a detailed narrative of the historical and modern-day challenges in Afghanistan that makes this ignorance believable. He describes a country populated by diverse ethnic tribes with strong aversions to central governance. As the title implies, he recalls the failure of foreign forces time and again to tame and govern this disparate Afghan populace. From Alexander the Great in 330 BC to the British Empire in the nineteenth century, to the Soviet invasion of the 1970s, Afghanistan has been seemingly unconquerable. Against this background Jones demonstrates the monumental challenge that the United States faces as it attempts to do what other "empires" could not—"create a new order" in Afghanistan. He clearly demonstrates that "the lessons from the past empires provide a stark lesson."

A well-respected political scientist at RAND, Seth Jones clearly has the credibility to take on the task of breaking down and explaining the complicated Afghan environment. Jones is an adjunct professor at Georgetown University, has taught at the Naval Postgraduate School, and has visited Afghanistan numerous times since 11 September 2001. *In the Graveyard of Empires* is painstakingly researched, with over a thousand notes citing interviews, documents, books, news articles, video clips, and written statements

from numerous U.S. and international figures who have played prominent roles in Afghanistan since before and after 9/11. In fact, Jones's many citations and his approach of listing diverse players with one-line, anecdotal physical descriptions or personality traits can be overwhelming and even detract from the narrative.

Nonetheless, this book does a superb job of filling in the details of Afghanistan's complex politics for scholars who are interested in gaining a better understanding of the history, the state and nonstate actors involved, and the many civil and military leaders who have attempted to calm the political upheaval in Afghanistan. Jones ably explains how, after the United States and its allies quickly knocked the Taliban from power, routed al-Qa'ida, and set up a popularly elected central government, the country nonetheless failed to establish an adequate justice system and security for its populace—instead allowing a robust insurgency to develop. With the experience of someone who has walked the ground and talked to the leaders on all sides, Jones effectively argues that the drug trade, high-level government corruption, and the lack of resources could, if not resolved, lead to one more headstone in Afghanistan's graveyard.

DOUGLAS J. WADSWORTH
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Zatarain, Lee Allen. *Tanker War: America's First Conflict with Iran, 1987–1988.* Philadelphia: Casemate, 2008. 388pp. $32.95

Lee Zatarain, an attorney, has crafted a compelling and immensely readable account of one of the least-known chapters of the U.S. Navy's maritime combat operations, the tanker war of 1987–88. The tanker war was fought by three now very familiar foes—Iran and Iraq (who had been at war with each other since 1980), and the United States, which became embroiled in the conflict when an Iraqi aircraft attacked and nearly sank one of its frontline warships in 1987. Using new information gained from the U.S. Navy and other U.S. government sources, as well as extensive interviews with the officers and crew who served in the Persian Gulf during the fifteen-month war, Zatarain examines and explains with lawyerly precision the events that constituted the U.S. Navy's combat operations against Iranian naval forces.

Tanker War begins with a detailed account of the Iraqi attack on the guided-missile frigate USS *Stark* in May 1987; the first successful antiship-missile attack on a U.S. Navy warship, it resulted in thirty-seven deaths. That attack, however, precipitated no military response against Iraq by the United States, largely because it was considered to have been an unfortunate accident, and Iraq was more of a friend than Iran. Iran's subsequent actions—laying mines in the heavily trafficked channels of the Gulf to interrupt the flow of Iraqi oil and attacking civilian oil tankers—forced the United States to side with Iraq. As Zatarain explains in straightforward fashion, the conflict that ensued nearly cost the U.S. Navy another warship, USS *Samuel B. Roberts,* and subjected the Navy to several antiship-missile attacks by the Iranian military. In retaliation, the U.S. Navy destroyed a good part of the Iranian navy and

effectively established the American maritime dominance in the Persian Gulf that exists to this day.

Among the key issues that Zatarain raises in his gripping account of the various battles fought between the United States and Iran is the controversial claim by many U.S. Navy commanding officers that Iran used Chinese-made Silkworm antiship missiles against American ships. Their claims were discounted by senior military commanders, who refused to acknowledge that any such attacks had occurred, despite extensive evidence to the contrary—such attacks would have required a military response that the United States and the U.S. military were neither willing nor able to undertake.

As political tensions have continued to rise in recent years between the United States and Iran, *Tanker War* is a must-read for those who have a desire or a duty to understand how recent history may shape perceptions of these protagonists in the future.

RON RATCLIFF
Naval War College

Graham, Bradley. *By His Own Rules: The Ambitions, Successes, and Ultimate Failures of Donald Rumsfeld.* New York: PublicAffairs, 2009. 803pp. $35

In a speech given to Pentagon employees on 10 September 2001, Secretary of Defense Donald Rumsfeld stated that the "adversary that poses a threat, a serious threat, to the security of the United States" is not "decrepit dictators" but rather "the Pentagon bureaucracy." The blunt message of this speech was very soon to be bound together in a tension-filled relationship with the ensuing wars initiated by the terrorist attacks of the next day. This tension gives dramatic shape to the career of Donald Rumsfeld as portrayed by Bradley Graham in his well researched book *By His Own Rules.* A veteran *Washington Post* correspondent, Graham intends that the title be regarded literally, as his detailed story focuses on Rumsfeld as a master bureaucratic infighter who did indeed work by his own rules. (The rules encapsulated Rumsfeld's views on serving and surviving in government and were eventually printed in the *Wall Street Journal.*)

Rumsfeld applied the rules in his intense commitment to the type of U.S. military President George W. Bush had called for during his campaign, an "agile, lethal, readily deployable" armed force. To build this force required a significant transformation of the outsized and ponderous military developed during and immediately after the Cold War. Graham portrays Rumsfeld as a reformer who "had never met an organization he didn't want to change" and who had come well prepared to transform the Defense Department, but for two untimely wars.

Rumsfeld's personal goal of transforming the military seemed to overshadow his responsibilities for prosecuting the wars. Graham describes at length how Rumsfeld's missteps in managing the wars in Iraq and Afghanistan caused him to become the "personification of the arrogance and misjudgments of the Bush Administration," from damaging interagency power struggles to intolerance of differing viewpoints, to a lack of ability to acknowledge mistakes or change strategies.

Yet Graham also well portrays Rumsfeld as a complex man who got things accomplished. A tenacious collegiate wrestler at Princeton and a Navy pilot, Rumsfeld was elected to Congress at age thirty. He served four terms before President Richard Nixon appointed him as head of the Office of Economic Opportunity and then as ambassador to NATO. Under President Gerald Ford, Rumsfeld would serve as White House chief of staff and as the youngest-ever secretary of defense. In Rumsfeld's business career, he was a CEO responsible for the successful turnaround of several major corporations. With his appointment in 2001, he would also become the oldest to serve as secretary of defense. In all of his many appointments and responsibilities, Rumsfeld comes across as an intense, capable, and ambitious operator with a "deep moral streak."

Graham's well written and comprehensive narrative implies an answer to the question of why an administrator known for his diligent and rational approach to resolving complex issues ultimately presided over a deeply dysfunctional policy-making process. In Rumsfeld, overconfidence eventually converted a healthy skepticism about thorough organizational procedures into near contempt for them. Transforming the military, like countering an insurgency, proved to be more about changing minds than about building new weapons or using old ones. Graham concludes that Rumsfeld's "biggest failings were personal—the result of the man himself, not simply of the circumstances he confronted."

WILLIAM CALHOUN
Naval War College

Barlow, Jeffrey G. *From Hot War to Cold: The U.S. Navy and National Security Affairs, 1945–1955.* Palo Alto, Calif.: Stanford Univ. Press, 2009. 710pp. $65

The U.S. Navy that patrolled the world's oceans with such unquestioned dominance in the 1990s did not spring into existence full-blown, nor was its creation a smooth evolution based on dispassionate analysis and national consensus. The early years of that postwar Navy, particularly its first, crucial decade, were marked by storms, impassioned debate, and bitter political battles. This turmoil had started before the end of the Second World War and would continue into the mid-1950s. Unfortunately, there has been far too little written about this period in the U.S. Navy's history.

Jeffrey Barlow, a noted naval historian and author, has done much to close that gap and in the process has produced a stunning book. Meticulously researched and scrupulously documented, *From Hot War to Cold* is a gripping account of how the modern Navy was formed in the crucible of the first ten years after the war. As a history, this volume is first-rate. As a study of decision making, it is superb.

Barlow consistently reminds the reader just how important this decade was. As he relates, military and government leaders wrestled with critical emerging technologies, tectonic political shifts, and ferocious internal battles. He examines every aspect of these times, tracing how military organizations were shaped and affected by a series of defense reorganization acts, and how the Air Force and Navy battled for a role in the nation's nuclear strategy. Over time,

deployment patterns were established that would last for half a century.

This book not only speaks knowledgeably about technical, organizational, and doctrinal shifts over a tumultuous decade but gives full attention to the personalities of the day. From the president on down, Barlow examines the debates, discourse, plots, and planning, as well as the passion and emotion that went into these decisions. There are giants in these pages, including Ernest J. King, Forrest Sherman, James Forrestal, Harry Truman, and Dwight D. Eisenhower. There is also a myriad of other officers and leaders whose names should be more familiar, such as Admirals Richard Conolly and Edward C. Ewen.

Barlow has captured the flavor of political infighting at its best and worst. Among the more dramatic accounts is the tale of how Secretary of the Navy Charles Thomas fired Admiral Robert B. Carney, who, as Chief of Naval Operations, had tangled with the secretary of state, infuriated President Eisenhower, and refused to exchange message traffic with Thomas.

If there is a flaw with Barlow's book, it is the flaw to which every writer aspires—to instill in the reader a feeling of regret when the last page is turned and the book is finished. It is profoundly to be hoped that this volume will be followed by a second and a third.

RICHARD NORTON
Naval War College

OF SPECIAL INTEREST

CALL FOR PAPERS: *THE JOURNAL OF INTERNATIONAL SECURITY AFFAIRS*

The editorial board of *The Journal of International Security Affairs* invites submissions of papers for its Fall 2010 issue. The *Journal* (ISSN 1532-4060), published twice yearly by the nonprofit, nonpartisan Jewish Institute for National Security Affairs, covers the U.S. military and global security issues affecting the United States and its allies abroad. All articles submitted to the *Journal* are confidentially refereed. Submission guidelines can be found at www.securityaffairs.org.

REFLECTIONS ON READING

Professor John E. Jackson is the Naval War College's manager for the Navy Professional Reading Program.

There are sixty great books in the complete Navy Professional Reading Program (NPRP) library. Sailors interested in participating in the NPRP often ask where they should begin. While you can't go wrong reading any of the carefully selected books, this article will give you just a "taste" of several books, which may tempt you to read further. For example:

> They were gone for five minutes, and they came back together. Ben Sharmak stood for a few moments staring at me, and then he climbed away, back to his army. Gulab walked down the hill to me and tried to explain Sharmak had handed him a note that said, *Either you hand over the American—or every member of your family will be killed.*
>
> Gulab made his familiar dismissive gesture, and we both turned and watched the Taliban leader walking away through the trees. And the village cop offered me his hand, helped me to my feet, and once more led me through the forest, half lifting me down the gradients, always considerate of my shattered left leg, until we reached a dried-up riverbed.
>
> And there we rested. We watched for Taliban sharpshooters, but no one came. All around us in the trees, their AKs ready, were familiar faces from Sabray ready to defend us.

What happens next? Find out by reading *Lone Survivor,* by Marcus Luttrell with Patrick Robinson (New York: Little, Brown, 2007).

> I once watched a man being kidnapped in Beirut. It took only a few seconds. I was on my way to Beirut International Airport when my taxi became stalled in traffic. Suddenly I saw off to my right four men with pistols tucked into their belts who were dragging another man out his front door. A woman, probably his wife, was standing just inside the shadow of the door, clutching her bathrobe and weeping. The man was struggling and kicking with all his might, a look of sheer terror in his eyes.

> Somehow the scene reminded me of a group of football players carrying their coach off the field after victory, but this was no celebration. Just for a second my eyes met those of a hapless victim, right before he was bundled into a waiting car. His eyes did not say, "Help me"; all they spoke was fear. He knew I couldn't help him. This was Beirut.

Want to know more about this exotic city? Read: *From Beirut to Jerusalem,* by Thomas Friedman (New York: Anchor Books, 1990).

> Captain Copeland picked up the intercom mike and addressed the *Roberts*'s crew. That he was speaking for himself struck Ens. Jack Moore as unusual and urgent. Normally seaman Jack Roberts was the public address voice of his namesake warship. His southern drawl was all but unintelligible to anyone not acquainted with Dixie's rhythms and diphthongs. But the skipper's diction was as crisp as a litigator's. He was talking fast and sounding more than a little nervous.
>
> "A large Japanese fleet has been contacted. They are fifteen miles away and headed in our direction. They are believed to have four battleships, eight cruisers, and a number of destroyers.
>
> "This will be a fight against overwhelming odds from which survival cannot be expected. We will do what damage we can."

Did the men of the USS *Roberts* survive? Find out by reading *The Last Stand of the Tin Can Sailors,* by James D. Hornfischer (New York: Bantam Books, 2004).

> The *Enterprise* marked her combat debut by launching twenty-one Phantoms and Skyhawks in a strike against Vietcong installations near Bien Hoa, South Vietnam. There were rough spots in that first day at war for the "Big E." A Phantom pilot, obviously shaken by his first exposure to combat, was forced to eject after making seven unsatisfactory landing approaches and then being unable to plug into an airborne tanker for emergency refueling. The pilot was picked up by the carrier's plane guard helicopter and returned to the *Enterprise.* He was uninjured in the parachuting but was flown off on the first available carrier on-board delivery transport for transfer back to the States and a naval career in an assignment that did not involve flying. A second Phantom was lost when a premature bomb explosion put holes in the fuel tank and the pilot and radar intercept officer (RIO) ejected over South Vietnam when the tanks ran dry. Soldiers of the Army Special Forces group at Hon Quan arrived thirty-five minutes later and brought an Air Force rescue helicopter to evacuate the aircrew. By the afternoon, operations had smoothed out and the *Enterprise* and Air Wing 9 had completed every mission on the daily flight schedule. CVW-9 flew 125 strike sorties on that date, unloading 167 tons of bombs and rockets on the enemy.

Find out more about the "Big E" by reading *Aircraft Carriers at War,* by Admiral James L. Holloway III (Annapolis, Md.: Naval Institute Press, 2007).

Have we captured your interest? Go to the NPRP library at your command and get the whole story!

JOHN E. JACKSON